mineral resources & energy

Department:
Mineral Resources and Energy
REPUBLIC OF SOUTH AFRICA

DRAFT BASIC ASSESSMENT REPORT (BAR) AND ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT (EMPR)

FOR THE PROPOSED KOPANYA SOLAR PHOTOVOLTAIC 2 PROJECT AND ASSOCIATED INFRASTRUCTURE AT BOOYSENDAL SOUTH MINE, MPUMALANGA PROVINCE

SUBMITTED FOR ENVIRONMENTAL AUTHORISATIONS IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 AND THE NATIONAL ENVIRONMENTAL MANAGEMENT WASTE ACT, 2008 IN RESPECT OF LISTED ACTIVITIES THAT HAVE BEEN TRIGGERED BY APPLICATIONS IN TERMS OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (MPRDA) (AS AMENDED)

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Proposed Kopanya Solar Photovoltaic 2 Project and Associated Infrastructure at Booysendal South Mine, Mpumalanga Province

Draft Basic Assessment Report and Environmental Management Programme

Version – Draft

05 November 2026

GCS Project Number: 25-0608

Client Reference: Kopanya Solar PV 2 Project



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Proposed Kopanya Solar Photovoltaic 2 Project and Associated Infrastructure at Booysendal South Mine, Mpumalanga Province

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IMPORTANT NOTICE

In terms of the Mineral and Petroleum Resources Development Act (Act 28 of 2002 as amended), the Minister must grant a prospecting or mining right if among others the mining "will not result in unacceptable pollution, ecological degradation or damage to the environment".

Unless an Environmental Authorisation (EA) can be granted following the evaluation of an Environmental Impact Assessment and an Environmental Management Programme report in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA), it cannot be concluded that the said activities will not result in unacceptable pollution, ecological degradation or damage to the environment.

In terms of section 16(3)(b) of the Environmental Impact Assessment (EIA) Regulations, 2014, any report submitted as part of an application must be prepared in a format that may be determined by the Competent Authority and in terms of section 17 (1) (c) the competent authority must check whether the application has taken into account any minimum requirements applicable or instructions or guidance provided by the competent authority to the submission of applications.

It is therefore an instruction that the prescribed reports required in respect of applications for an EA for listed activities triggered by an application for a right or a permit are submitted in the exact format of, and provide all the information required in terms of, this template. Furthermore, please be advised that failure to submit the information required in the format provided in this template will be regarded as a failure to meet the requirements of the Regulation and will lead to the EA being refused.

It is furthermore an instruction that the Environmental Assessment Practitioner (EAP) must process and interpret his/her research and analysis and use the findings thereof to compile the information required herein. (Unprocessed supporting information may be attached as appendices). The EAP must ensure that the information required is placed correctly in the relevant sections of the Report, in the order, and under the provided headings as set out below, and ensure that the report is not cluttered with un-interpreted information and that it unambiguously represents the interpretation of the Applicant.

Objective of the Basic Assessment Process

The objective of the Basic Assessment process is to, through a consultative process—

(a) determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;

(b) identify the alternatives considered, including the activity, location, and technology alternatives;

(c) describe the need and desirability of the proposed alternatives;

(d) the undertaking of an impact and risk assessment process inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on the these aspects to determine:

(i) the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and

(ii) the degree to which these impacts

aa) can be reversed;

bb) may cause irreplaceable loss of resources; and

(cc)can be managed, avoided or mitigated;

(e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to—

(i) identify and motivate a preferred site, activity and technology alternative;

(ii) identify suitable measures to manage, avoid or mitigate identified impacts; and

(iii) identify residual risks that need to be managed and monitored.

OBJECTIVES OF THE BASIC ASSESSMENT PROCESS

The Basic Assessment (BA) process for the proposed Kopanya Solar Photovoltaic 2 Project (the proposed Project) is being undertaken in accordance with the National Environmental Management Act, 1998 (Act No. 107 of 1998), and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended.

The BA process aims, through an environmental assessment and Public Participation Process (PPP), to:

- Identify the legislation, policies and regulatory requirements applicable to the proposed Project.
- Establish the need and desirability of the proposed Project, taking into consideration its location and environmental and socio-economic context.
- Identify and assess reasonable and feasible alternatives, including development layout, technology and the no-go alternative.
- Identify and assess potential environmental and socio-economic impacts and risks, including cumulative impacts.
- Evaluate the nature, significance, extent, duration, probability and consequences of identified impacts.
- Identify appropriate measures to avoid, minimise, mitigate and manage potential impacts, including residual impacts requiring ongoing management and monitoring.
- Incorporate specialist findings and recommendations into the environmental assessment and Environmental Management Programme (EMPr).
- Provide Interested and Affected Parties (I&APs) and relevant organs of state with an opportunity to review the assessment findings and submit comments.
- Provide the Department of Mineral and Petroleum Resources (DMPR), as the Competent Authority, with sufficient information to make an informed decision on the Environmental Authorisation (EA) Application.

The findings of the environmental assessment, specialist investigations, identified impacts and proposed mitigation measures are presented in the Draft Basic Assessment Report (DBAR) and accompanying EMPr. Comments and concerns raised by I&APs and relevant organs of state will be considered and addressed as part of the assessment process.

PUBLIC REVIEW OF THE DRAFT BASIC ASSESSMENT REPORT

The DBAR, accompanying EMPr and supporting specialist reports will be available for public review and comment from **10 November 2026 to 10 December 2026**.

I&APs and relevant organs of state are invited to review the documentation and submit written comments, concerns or additional information relevant to the proposed Project to GCS Environment South Africa (Pty) Ltd (GCS) by **10 December 2026**.

The documentation will be available at the following public review locations and electronically on the GCS website.

PUBLIC REVIEW LOCATIONS

Place	Address
Lydenburg Public Library	41 Viljoen Street, Mashishing
Bakone Ba Phetla Royal Kraal – Magopheng	Ga-Phetla Village, Sticskop Makgotheng, Fetakgomo Tubatse Local Municipality
Tonteldoos Secondary School	Draaikraal Farm, Klipbankspruit, Roossenekal, 1066
Elias Motsoaledi Local Municipality Satellite Office	143 Hugo Street, Roossenekal, 1066
Shopping Complex	Draaikraal
Maartenshoop Police Station	Naauwpoort Farm
Thusong Centre	Mashishing
GCS Website	https://www.gcs-sa.biz/public-documents/

NEXT STEPS IN THE BASIC ASSESSMENT PROCESS

Following the public review period, all comments received will be recorded, considered and addressed in the Comments and Responses Report (CRR). Where necessary, the DBAR and EMPr will be updated to incorporate relevant comments and recommendations.

The Final Basic Assessment Report (FBAR), including the updated EMPr, specialist reports and CRR, will subsequently be submitted to the DMPR for consideration and a decision on the EA Application.

The DMPR will review the submitted documentation and determine whether EA should be granted, subject to appropriate conditions, or refused. Registered I&APs will be notified of the decision and provided with information regarding the applicable appeal procedures.

YOUR INPUT ON THE DRAFT BASIC ASSESSMENT REPORT

You are invited to review the DBAR and accompanying EMPr and submit your comments by 10 December 2026. Your participation is important in ensuring that relevant environmental and socio-economic issues are identified and considered in the assessment. All comments received during the public review period will be recorded and addressed as part of the BA process. For further information, assistance in accessing the reports or submission of comments, please contact:

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EXECUTIVE SUMMARY

Booysendal Platinum (Pty) Ltd (Booysendal), a subsidiary of Northam Platinum Limited, proposes to develop the Kopanya Solar Photovoltaic 2 Project and Associated Infrastructure (the proposed Project) at the existing Booysendal South Mine (BS Mine), situated within the Thaba Chweu Local Municipality, Ehlanzeni District Municipality, Mpumalanga Province. The proposed Project forms part of the Mine's broader energy diversification and sustainability initiatives and is intended to supplement the electricity requirements of existing mining operations through the generation of renewable energy.

The proposed Project comprises a solar photovoltaic (PV) facility with a generation capacity of up to 20 megawatts alternating current (MWac), together with the associated electrical, access and supporting infrastructure. The facility is proposed within an existing mining landscape characterised by mining-related activities, access roads, electrical infrastructure and areas of previous disturbance. The location provides an opportunity to integrate renewable electricity generation with existing mine operations while limiting the need for development in previously undisturbed landscapes.

The proposed Project is intended primarily to supply electricity to BS Mine, thereby reducing reliance on electricity purchased from the national grid during periods of solar generation. The development is also expected to contribute towards improved energy resilience, diversification of the Mine's electricity supply and reduced indirect greenhouse gas emissions associated with electricity consumption. Any surplus electricity export will be subject to the applicable electrical infrastructure and grid connection arrangements.

The proposed Project is being assessed as a distinct development requiring environmental authorisation, notwithstanding its location within an established mining operation. The assessment therefore considers both the existing environmental disturbances associated with BS Mine and the additional impacts that may arise from the construction, operation and eventual decommissioning of the solar PV facility.

Project Description and Associated Infrastructure

The proposed solar PV facility will have a generation capacity of up to 20 MWac and an approximate development footprint of 41 hectares (ha). The development will comprise approximately 35,000 bifacial solar PV modules mounted on supporting structures, including single-axis tracking systems, together with the electrical and supporting infrastructure necessary for the generation, conversion, distribution and connection of electricity.

The principal components of the proposed Project include solar PV arrays and mounting structures, inverters, transformers, an on-site substation, an overhead power line of up to 132 kilovolts (kV), internal access roads, fencing, security infrastructure, stormwater management facilities and

associated electrical cabling. Temporary construction infrastructure will include laydown areas, material storage areas, construction access facilities and other supporting infrastructure required during the construction phase.

Construction activities will include site establishment, limited vegetation clearing, earthworks, installation of foundations and mounting structures, trenching for underground electrical cables, construction of access roads, installation of electrical infrastructure and commissioning of the facility. Foundation construction will, where feasible, prioritise methods that minimise soil disturbance and the extent of excavation. Shallow, localised blasting may be required for cable trenches, foundations and footings where mechanical excavation or minor realignment is not reasonably feasible.

Operational activities will primarily comprise electricity generation, routine inspection and maintenance of solar PV modules and electrical infrastructure, vegetation management, maintenance of access roads and stormwater infrastructure, and environmental monitoring. The facility will not involve the combustion of fossil fuels for electricity generation, although ancillary operational activities may generate limited waste, vehicle emissions, noise and other localised environmental disturbances.

At the end of its operational life, the facility will be decommissioned or otherwise managed in accordance with the applicable authorisations and approved closure requirements. Decommissioning activities will include the removal of redundant infrastructure, recovery and appropriate disposal of materials, soil reinstatement, erosion control, revegetation and post-closure monitoring.

Purpose and Scope of the Basic Assessment

GCS Environment South Africa (Pty) Ltd (GCS) was appointed as the independent Environmental Assessment Practitioner (EAP) to undertake the Basic Assessment (BA) process and prepare the Basic Assessment Report (BAR) and Environmental Management Programme (EMPr) for the proposed Project. The assessment is being undertaken in accordance with the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA), and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended.

The Department of Mineral and Petroleum Resources (DMPR) is the Competent Authority responsible for considering the Environmental Authorisation (EA) application. The application was submitted to the DMPR on 30 September 2026. The BAR has been prepared to provide the Competent Authority, Interested and Affected Parties (I&APs) and relevant organs of state with information regarding the proposed activities, the receiving environment, reasonable and feasible alternatives, potential environmental impacts and the measures proposed to avoid, minimise, manage and rehabilitate those impacts.

The BA process considers the nature, extent, duration, probability, consequence and significance

of potential environmental impacts, including cumulative impacts and residual impacts following mitigation. The assessment draws on specialist investigations, environmental sensitivity information, engineering and development considerations, and stakeholder engagement. The findings have informed the refinement of the proposed development layout and the preparation of environmental management and monitoring commitments for the different phases of the proposed Project.

The accompanying EMPr establishes the impact management objectives, outcomes and actions required during planning and design, pre-construction, construction, operation, rehabilitation and decommissioning. It also identifies implementation responsibilities, monitoring requirements, performance indicators and corrective measures intended to ensure that the environmental commitments identified through the assessment are implemented.

Need and Desirability of the Proposed Project

The proposed Project responds to the need for a more diversified and reliable electricity supply for BS Mine. Mining operations are energy-intensive and depend on a stable electricity supply to maintain operational continuity. The development of a dedicated solar PV facility provides an opportunity to supplement the Mine's electricity requirements through renewable generation while reducing reliance on grid-supplied electricity during daylight hours.

The proposed Project is consistent with broader national objectives relating to electricity supply diversification, renewable energy development and the reduction of greenhouse gas emissions associated with electricity generation. By integrating renewable electricity generation with an existing mining operation, the proposed Project may contribute towards improved operational energy resilience and a reduction in the carbon intensity of electricity consumed by the Mine.

The proposed development may also generate temporary employment opportunities and demand for goods and services during construction, together with more limited operational employment and maintenance opportunities. Local procurement and employment benefits will depend on the availability of suitable skills, services and procurement opportunities and the implementation of Booysendal's relevant employment and procurement arrangements.

The desirability of the proposed Project is further influenced by its location within an established mining environment, where existing access and electrical infrastructure may support development. However, the presence of existing mining activities does not eliminate the ecological sensitivity of the surrounding landscape. The assessment has therefore considered the need to balance the anticipated energy and socio-economic benefits against the potential loss or disturbance of remaining natural habitats, wetlands, drainage features and other sensitive environmental resources.

The proposed Project is considered desirable where development can be accommodated within the assessed footprint without unacceptable impacts on sensitive environmental features and where

the prescribed mitigation, rehabilitation and monitoring requirements can be effectively implemented.

Alternatives Considered and Preferred Development Layout

The assessment considered reasonable and feasible alternatives relating to the location, development layout and technology of the proposed Project, together with the No-Go Alternative. Four potential development sites were considered during the initial site selection process, with Site 4 identified as the preferred alternative based on the overall suitability of the location for solar PV development.

The selection of the preferred site was informed by considerations including available land, topographical conditions, proximity to existing electrical infrastructure, access requirements, development feasibility and environmental constraints. The preferred site provides an opportunity to develop the solar PV facility in association with the existing BS Mine infrastructure, while incorporating measures to avoid or minimise disturbance to environmentally sensitive areas.

The technology alternatives considered included solar PV and concentrated solar power. Solar PV was identified as the preferred technology due to its suitability for the proposed generation capacity, site conditions and intended integration with the Mine's electricity supply arrangements. The selected technology also provides flexibility in the arrangement of solar arrays and supporting infrastructure, allowing the development layout to be refined in response to environmental constraints.

The No-Go Alternative would result in the proposed solar PV facility not being developed. This alternative would avoid the direct environmental impacts associated with construction and operation of the proposed Project, including vegetation clearing, soil disturbance, habitat modification and the introduction of additional electrical infrastructure. However, it would also result in the loss of the anticipated renewable electricity generation, energy diversification and associated operational and socio-economic benefits.

Although four potential sites were considered during initial screening, the detailed specialist investigations focused primarily on the preferred development area. The comparative assessment must therefore be understood in the context of the available site selection information and the more detailed environmental investigations undertaken for the preferred alternative.

The preferred development layout has been informed by the specialist sensitivity mapping and recommendations. Further refinement and micro-siting may be required during detailed design to ensure that infrastructure avoids sensitive habitats, wetlands, drainage features and other environmental constraints. Particular attention must be given to the identified overlap between preliminary infrastructure and High Site Ecological Importance (SEI) avifaunal habitat.

Description of the Receiving Environment

The proposed Project is located within a landscape influenced by existing mining operations and

associated infrastructure. The surrounding environment includes areas of modified and disturbed land, remaining natural vegetation, rocky grassland habitats, wetlands, drainage features and natural ecological corridors. The environmental assessment recognises that, despite the existing mining-related disturbance, portions of the development area and surrounding landscape retain ecological and hydrological functions requiring protection.

The terrain and geological conditions influence the distribution of soils, vegetation communities, drainage features and hydropedologically responsive areas. Construction activities involving vegetation clearing, earthworks, excavations and infrastructure installation have the potential to disturb soils, alter surface runoff patterns and increase erosion and sedimentation if not appropriately managed.

The terrestrial environment supports vegetation and habitat types of differing ecological sensitivity. Modified areas and alien vegetation stands generally present fewer ecological constraints than remaining natural habitats, particularly areas associated with rocky grassland, water resources and ecological connectivity. The retention of indigenous vegetation, protection of sensitive habitats and restriction of development to the approved footprint are therefore important considerations.

Wetlands and non-perennial drainage features form part of the local hydrological system and contribute to surface water movement, sediment regulation and ecological functioning. Hydropedologically responsive soils may also influence the movement and storage of subsurface water. Development activities that alter drainage pathways, increase soil compaction or concentrate stormwater runoff could affect these functions and must be appropriately managed.

The receiving environment also includes heritage and palaeontological considerations, existing visual receptors, transport infrastructure and surrounding communities with interests in the environmental and socio-economic implications of the proposed development. These aspects have been considered through the baseline assessment, specialist investigations and Public Participation Process (PPP).

Specialist Investigations and Key Findings

Eight specialist reports were prepared to inform the environmental assessment, identify environmental sensitivities, evaluate potential impacts and recommend mitigation measures for the proposed Project. These comprise the Soil and Agricultural Compliance Statement, Terrestrial Biodiversity Assessment, Avifaunal Assessment, Wetland Functional and Impact Assessment, Hydropedological Assessment, Heritage Impact Assessment incorporating palaeontological considerations, Visual Impact Assessment, and Final Rehabilitation, Decommissioning and Mine Closure Plan.

The specialist findings have been incorporated into the assessment of potential impacts, selection and refinement of the preferred development layout, and development of the EMPr. The principal

findings are summarised below.

Soils, Land Capability and Agricultural Resources

The soil and agricultural assessment considered the baseline soil conditions, land capability and agricultural potential of the proposed development area. The principal potential impacts relate to the disturbance and removal of topsoil, soil compaction, erosion, changes in soil structure and the loss of land capability associated with vegetation clearing, earthworks, construction traffic and infrastructure installation.

The specialist recommends limiting the development footprint, restricting construction activities and vehicle movements to designated areas, appropriately managing topsoil and rehabilitating temporarily disturbed areas. Particular attention must be given to preventing unnecessary compaction and maintaining soil stability and drainage during construction.

The assessment indicates that the residual agricultural impact can be reduced to Low significance through implementation of the recommended soil management and rehabilitation measures. These measures have been incorporated into the construction and rehabilitation requirements of the EMPr.

Terrestrial Biodiversity, Flora and Fauna

The terrestrial biodiversity assessment identified habitats of varying ecological sensitivity within the proposed development area. Modified habitat and alien vegetation stands generally have lower Site Ecological Importance (SEI), while remaining natural grassland, rocky habitats and areas associated with water resources are more sensitive and provide important habitat and ecological connectivity.

The principal potential impacts include vegetation clearing, habitat loss and fragmentation, disturbance or displacement of fauna, potential injury or mortality of animals during construction, and the introduction or spread of alien invasive plant species. Construction activities, including excavations and localised blasting, may also affect fauna occupying burrows, rocky refuges and other suitable habitats.

The specialist recommends prioritising infrastructure placement within lower-sensitivity habitats, avoiding unnecessary disturbance to natural vegetation and protecting areas of higher ecological importance. A pre-construction ecological walkdown must be undertaken to identify protected plants, species of conservation concern, occupied burrows and other sensitive ecological features. Appropriate avoidance, rescue or relocation measures must be implemented where required and legally permissible.

The EMPr provides for demarcation of approved construction areas and environmental no-go areas, progressive vegetation clearing, fauna protection, wildlife-permeable fencing, management of open excavations, alien invasive plant control and rehabilitation using locally appropriate indigenous vegetation.

Although the proposed mitigation measures are expected to reduce the significance of Project-level terrestrial biodiversity impacts, cumulative habitat transformation and fragmentation remain important considerations within the broader landscape. The retention of remaining natural habitats and maintenance of ecological connectivity are therefore essential to the environmental acceptability of the proposed Project.

Avifauna

The avifaunal assessment considered the bird species and habitats occurring within and surrounding the proposed development area, together with potential impacts associated with construction activities, solar PV infrastructure and the proposed overhead power line.

Potential impacts include habitat loss and disturbance, displacement of birds, disturbance to active nests, collision with electrical infrastructure, electrocution and potential reflection-related effects associated with solar PV modules. These impacts may occur during construction and operation, with the significance influenced by habitat sensitivity, infrastructure placement and the effectiveness of mitigation measures.

The specialist identified an approximately 0.29 ha overlap between preliminary infrastructure and habitat classified as having High SEI. This represents an important outstanding layout constraint requiring verification and resolution before the affected infrastructure is implemented. The final development layout must be checked against the specialist sensitivity mapping, and any necessary refinements must be assessed to confirm that the specialist findings and mitigation requirements remain applicable.

Recommended mitigation includes pre-construction avifaunal walkdowns, protection of active nests and sensitive habitats, appropriate scheduling of disturbance activities, bird-sensitive electrical infrastructure design, installation of suitable collision-prevention measures and monitoring of avifaunal incidents during construction and operation.

The avifaunal assessment also identifies cumulative habitat transformation and fragmentation as relevant considerations. The implementation of effective avoidance measures, bird-safe infrastructure design and long-term monitoring will therefore be necessary to minimise additional pressures on avifaunal populations.

Wetlands and Aquatic Biodiversity

The wetland and aquatic biodiversity assessment identified wetlands and non-perennial drainage features within the broader landscape surrounding the proposed development. These features contribute to local hydrological functioning, water movement, sediment regulation and ecological connectivity and require protection from direct disturbance and indirect impacts associated with development.

Potential impacts include vegetation disturbance, soil erosion, sedimentation, altered runoff patterns, changes in drainage connectivity and deterioration of water quality resulting from

construction activities, stormwater discharge, waste handling or accidental spills.

The specialist recommends avoiding delineated wetlands and drainage features and implementing the prescribed 20 m wetland scientific buffer and 15 m non-perennial drainage feature scientific buffer, subject to confirmation against the final specialist recommendations and approved development layout. Temporary construction facilities, stockpiles, refuelling areas and other potentially polluting activities must be located outside sensitive aquatic features and their applicable scientific buffers.

Stormwater management must maintain natural drainage connectivity, prevent concentrated runoff and erosion, and minimise sediment transport into downstream receiving environments. Appropriate pollution prevention, spill response, erosion control and rehabilitation measures must be implemented throughout construction and operation.

The specialist assessed the residual water-use risks as Low, provided that the recommended avoidance and management measures are implemented. These ratings were determined using the Department of Water and Sanitation (DWS) Risk Assessment Matrix and are therefore not directly comparable with the numerical impact significance ratings applied to other environmental components.

Hydropedology

The hydropedological assessment considered the relationship between soils, topography, infiltration, recharge and surface and subsurface water movement within the proposed development area. The assessment identified recharge-dominated hillslope conditions together with more sensitive lower-lying and hydrologically responsive soils.

Potential impacts include soil compaction, reduced infiltration, increased surface runoff, altered recharge patterns and disruption of subsurface flow pathways. These impacts may arise from vegetation clearing, construction traffic, foundations, roads, trenching and other infrastructure that changes the natural soil and drainage characteristics of the site.

The specialist recommends minimising unnecessary surface sealing and compaction, retaining vegetation cover where practicable, maintaining natural drainage pathways and implementing stormwater measures that promote infiltration and the dispersion of runoff. Sensitive responsive-wet soils must be protected, and untreated wastewater must not be discharged into the surrounding catchment.

The assessment indicates that the overall hydropedological impact can be reduced from Medium significance before mitigation to Low significance after mitigation. This conclusion is dependent on appropriate stormwater design, avoidance of sensitive soils and effective rehabilitation of compacted or disturbed areas.

Archaeological, Cultural Heritage and Palaeontological Resources

The heritage assessment considered archaeological, historical and cultural heritage resources, together with the potential occurrence of palaeontological material within the proposed development area. The assessment informs the identification of heritage constraints and the measures required to protect resources that may be affected by ground-disturbing activities.

Potential impacts relate primarily to excavation, trenching, foundation construction, localised blasting and other activities that may expose, damage or destroy previously unidentified archaeological, burial or palaeontological resources.

The specialist recommends restricting ground disturbance to the assessed development footprint and implementing the prescribed Chance Find and Fossil Find Procedures. Construction personnel must receive appropriate heritage awareness training, and work must cease in the immediate vicinity of any previously unidentified heritage or palaeontological material pending assessment and direction from the relevant specialist or heritage authority.

These measures have been incorporated into the EMPr to ensure that heritage resources are appropriately protected throughout construction and any subsequent ground-disturbing maintenance or decommissioning activities.

Visual Environment

The Visual Impact Assessment considered the existing landscape character, visibility of the proposed development, visual sensitivity of surrounding receptors and the potential for the solar PV facility and associated infrastructure to alter the visual environment.

The proposed Project is situated within a landscape already influenced by mining infrastructure, while the surrounding mountainous terrain provides a degree of visual screening. The proposed solar arrays, electrical infrastructure, overhead power line and associated facilities will nevertheless introduce additional infrastructure into the landscape and may result in localised changes to landscape character and visual exposure.

The specialist recommends minimising unnecessary vegetation clearing, locating temporary construction facilities within previously disturbed areas where practicable, controlling construction dust and lighting, and maintaining the appearance of operational infrastructure. Operational lighting must be limited to essential safety and security requirements and directed to minimise light spill into the surrounding landscape.

The specialist concludes that the anticipated visual impacts can be reduced to Low residual significance through implementation of the recommended mitigation measures. Progressive rehabilitation and appropriate infrastructure maintenance will contribute to limiting the long-term visual effects of the proposed development.

Environmental Impact Assessment and Significance of Impacts

The environmental impact assessment considered the potential positive and negative impacts associated with the proposed Project during construction, operation and decommissioning, together with cumulative impacts arising from existing and reasonably foreseeable development in the surrounding landscape.

The assessment followed the mitigation hierarchy, with priority given to avoiding sensitive environmental features through appropriate site selection, infrastructure placement and micro-siting. Where impacts cannot reasonably be avoided, measures have been identified to minimise the extent, duration and severity of disturbance, followed by rehabilitation and ongoing environmental management and monitoring.

The assessment incorporates the findings of the specialist investigations and the environmental sensitivities identified within the proposed development area. The significance of impacts was evaluated before and after mitigation, recognising that the effectiveness of the proposed mitigation measures depends on their implementation and the continued suitability of the final development layout.

Construction Phase

Construction activities represent the phase during which the greatest direct disturbance to soils, vegetation and habitats is anticipated. The principal impacts relate to vegetation clearing, habitat modification and fragmentation, soil compaction, erosion, changes to surface and subsurface drainage, potential sedimentation and pollution of water resources, and disturbance or mortality of fauna and avifauna.

Additional temporary impacts may arise from construction traffic, dust generation, noise, equipment emissions, visual disturbance and increased activity within the existing mining environment. Localised blasting may be required where mechanical excavation is not feasible, introducing potential risks associated with noise, vibration, flyrock and disturbance to wildlife and surrounding habitats.

The principal mitigation measures include restricting construction activities to the approved footprint, protecting environmentally sensitive areas and scientific buffers, implementing pre-construction ecological inspections, managing topsoil and stormwater, controlling dust and noise, preventing pollution and undertaking progressive rehabilitation. Blasting must be limited to necessary shallow excavations and undertaken in accordance with approved procedures, including pre- and post-blast wildlife inspections and appropriate flyrock and habitat protection measures.

With effective implementation of the prescribed mitigation measures, the majority of construction-related impacts are expected to be reduced to acceptable residual significance. However, the permanent loss or modification of natural habitats cannot be fully reversed through construction management measures, reinforcing the importance of avoidance and appropriate infrastructure placement.

Operational Phase

During operation, the proposed Project will generate renewable electricity and will require routine maintenance of the solar PV modules, electrical infrastructure, access roads, fencing and stormwater management systems. Operational activities are expected to involve substantially less ground disturbance than construction, although ongoing environmental management will remain necessary.

Potential operational impacts include disturbance to fauna and avifauna, collision and electrocution risks associated with electrical infrastructure, vegetation management impacts, altered stormwater runoff, localised erosion, waste generation and the visual presence of the solar PV facility.

The operational EMPr provides for vegetation management, maintenance of bird-sensitive infrastructure, inspection and maintenance of stormwater controls, pollution prevention, waste management, alien invasive plant control and environmental monitoring. Booysendal will be responsible for ensuring that operational activities remain within the authorised footprint and that identified environmental management commitments are maintained throughout the operational life of the facility.

The proposed Project will also provide positive operational benefits through renewable electricity generation, diversification of the Mine's electricity supply and reduced reliance on grid-supplied electricity during periods of solar generation.

Decommissioning and Rehabilitation Phase

Decommissioning activities will involve the dismantling and removal of redundant infrastructure, management of recovered materials, disturbance of soils and temporary increases in vehicle movements, noise, dust and waste generation. Without appropriate controls, these activities may result in soil erosion, pollution, habitat disturbance and impacts on surrounding water resources.

The Final Rehabilitation, Decommissioning and Mine Closure Plan provides the framework for managing these activities and achieving the intended post-closure land condition. The principal measures include the removal of redundant infrastructure, prioritisation of reuse and recycling, appropriate waste disposal, soil reinstatement, erosion control, indigenous revegetation and alien invasive plant management.

Rehabilitation must commence as soon as practicable following cessation of the activities responsible for the disturbance. Post-closure monitoring will be required to evaluate soil stability, vegetation establishment, erosion, alien invasive plant encroachment and the effectiveness of rehabilitation measures. Corrective action must be undertaken where the required rehabilitation outcomes are not achieved.

Cumulative Impacts

Cumulative impacts were assessed in the context of existing mining activities, associated infrastructure and other existing or reasonably foreseeable development within the surrounding landscape. The principal cumulative concerns relate to the progressive transformation and fragmentation of natural habitats, disturbance to terrestrial biodiversity and avifauna, and the combined visual effects of additional infrastructure.

Although the proposed Project is located within an established mining environment, the cumulative effects of development may extend beyond the individual Project footprint. The terrestrial biodiversity and avifaunal assessments identify cumulative habitat loss and fragmentation as important considerations, with residual cumulative effects assessed as Moderate Negative following mitigation.

These residual cumulative effects do not necessarily preclude development but reinforce the need to minimise additional habitat disturbance, protect remaining higher-value habitats, maintain ecological connectivity and implement the prescribed environmental management and monitoring measures.

The assessment also recognises cumulative positive contributions associated with renewable electricity generation, investment and procurement opportunities. These benefits must be considered alongside potential temporary socio-economic pressures, including employment expectations and increased construction-related activity.

Environmental Management Programme

The EMPr has been prepared to translate the findings of the environmental assessment and specialist investigations into practical environmental management requirements applicable throughout the proposed Project lifecycle. It establishes the management objectives, impact management outcomes, mitigation actions, responsibilities, implementation periods, monitoring requirements and performance indicators for the relevant activities and environmental aspects.

The EMPr includes general environmental requirements and phase-specific measures for pre-construction, construction, operation, rehabilitation and decommissioning. These measures address terrestrial biodiversity, fauna, avifauna, wetlands, hydropedology, soils, heritage resources, visual impacts, stormwater management, waste management, pollution prevention, noise, dust, traffic and rehabilitation.

Particular emphasis is placed on ensuring that the final development layout is consistent with the specialist sensitivity mapping and that environmentally sensitive features are appropriately protected before construction commences. This includes the demarcation of the approved construction footprint and environmental no-go areas, protection of the prescribed wetland and drainage feature scientific buffers, and completion of pre-construction ecological and avifaunal walkdowns.

The EMPr also provides for the management of temporary construction activities, including

excavations, localised blasting, material storage, vehicle movements and the handling of hazardous substances. Appropriate environmental awareness training, inspections, incident reporting and corrective actions will be required to ensure that contractors and operational personnel understand and implement the applicable environmental management measures.

The Environmental Control Officer (ECO) will undertake environmental compliance monitoring during construction, with responsibilities assigned to Booysendal, contractors and other relevant personnel. Monitoring records, inspection reports, incident registers and rehabilitation records will provide evidence of implementation and compliance.

The implementation of the EMPr will be subject to the conditions of the EA, applicable water-use authorisation requirements and other relevant statutory approvals. Where monitoring identifies non-compliance or unforeseen impacts, corrective measures must be implemented to prevent further environmental degradation.

Rehabilitation, Decommissioning and Financial Provision

A Final Rehabilitation, Decommissioning and Mine Closure Plan was prepared by Natural Evolution Group (2026) to establish the rehabilitation and closure requirements associated with the proposed Project. The plan considers the infrastructure to be removed, the anticipated disturbance associated with decommissioning, the rehabilitation measures required to restore disturbed areas and the costs associated with implementing the closure programme.

The closure strategy is based on the removal of redundant solar PV panels, mounting structures, electrical equipment and associated infrastructure, with materials prioritised for reuse or recycling where practicable. Waste materials that cannot be recovered must be managed and disposed of in accordance with applicable statutory requirements. Disturbed soils must be decompacted, topsoil reinstated and erosion controls implemented to support the establishment of suitable indigenous vegetation.

The rehabilitation programme must also address the management of alien invasive plant species and the restoration of stable surface drainage conditions. Post-closure monitoring is proposed for a period of at least five years to evaluate rehabilitation success and identify any corrective measures required to achieve the intended post-closure land condition.

The estimated rehabilitation, decommissioning and closure liability for the proposed Project is R6,474,968, including Value-Added Tax, based on the current development layout and closure assumptions. The financial provision has been determined through the project-specific closure liability assessment and must be reviewed periodically to account for changes in infrastructure, rehabilitation requirements, closure costs and applicable regulatory requirements.

The rehabilitation and closure commitments form an integral part of the proposed Project's environmental management obligations and must be implemented in accordance with the approved closure plan, EMPr and applicable authorisation conditions.

Public Participation Process

The Public Participation Process (PPP) is being undertaken in accordance with the requirements of the EIA Regulations, 2014, as amended, to provide I&APs and relevant organs of state with an opportunity to participate in the environmental assessment and comment on the proposed Project.

Previous stakeholder engagements informed the identification of environmental and socio-economic issues requiring consideration. These included cultural heritage, graves and traditional practices, biodiversity and land disturbance, water resources and community livelihoods, waste management and Project safety, electricity supply, employment and skills development, local procurement and access to Project information.

The Draft BAR, EMPr and supporting specialist reports will be made available for public review and comment from 10 November 2026 to 10 December 2026. The documentation will be available electronically through the GCS website and at designated public review locations, including facilities in Mashishing, Roossenekal, Draaikraal and surrounding communities.

Registered I&APs, relevant organs of state and other stakeholders will be invited to review the documentation and submit comments, concerns or additional information relevant to the proposed Project. Comments received during the review period will be recorded and considered as part of the assessment process.

Following completion of the public review period, a Comments and Responses Report will be prepared to document the issues raised and the responses provided. The Draft BAR and EMPr will be updated where necessary to incorporate relevant comments and recommendations, and the Final BAR, updated EMPr, specialist reports and supporting documentation will subsequently be submitted to the DMPR for consideration and a decision on the EA application.

Environmental Assessment Practitioner's Reasoned Opinion and Conclusion

Based on the information available at the time of preparation of this Draft BAR, the findings of the specialist investigations, the assessment of potential environmental and socio-economic impacts, and the proposed mitigation and management measures, the EAP is of the opinion that the proposed Project may be authorised, subject to the implementation of the prescribed environmental management requirements and resolution of the identified outstanding layout constraints.

The proposed Project provides an opportunity to supplement the electricity requirements of BS Mine through renewable energy generation, improve the diversification and resilience of the Mine's electricity supply and contribute towards broader renewable energy and sustainability objectives. Its location within an established mining environment offers opportunities to utilise existing infrastructure and accommodate the development within a landscape already influenced by industrial activities.

The environmental assessment nevertheless identifies sensitive environmental features requiring protection, particularly wetlands and drainage features, associated scientific buffers, remaining

natural grassland and higher-sensitivity terrestrial and avifaunal habitats, hydropedologically responsive soils and natural drainage pathways. The preferred development layout has been informed by these environmental sensitivities and must continue to be refined through detailed design and micro-siting where necessary to avoid or minimise impacts.

The specialist and EAP assessments indicate that the principal Project-level environmental impacts can generally be reduced to acceptable residual levels through appropriate infrastructure placement, avoidance of sensitive features, effective design and implementation of the prescribed mitigation measures. The cumulative terrestrial biodiversity and avifaunal effects remain comparatively more important, with Moderate Negative residual significance following mitigation. These cumulative impacts reinforce the need to minimise additional habitat loss, protect higher-value ecological features and maintain ecological connectivity within the broader landscape.

The identified approximately 0.29 ha overlap between preliminary infrastructure and High SEI avifaunal habitat requires particular attention. The final development layout must be verified against the specialist sensitivity mapping, and the overlap must be appropriately resolved before the affected infrastructure is implemented. Any material changes to the assessed layout must be reviewed to confirm that the specialist findings, impact assessments and mitigation requirements remain applicable.

The environmental acceptability of the proposed Project is further dependent on compliance with the conditions of the EA, applicable water-use requirements and other statutory approvals, implementation of the EMPr, protection of the prescribed scientific buffers, completion of required pre-construction ecological verification, and effective rehabilitation and environmental monitoring throughout the Project lifecycle.

Accordingly, the EAP is of the opinion that the proposed Project is environmentally acceptable and may be authorised, provided that the final development layout remains consistent with the assessed and authorised footprint, outstanding environmental constraints are satisfactorily resolved, and the commitments contained in the BAR, specialist reports, EMPr and Final Rehabilitation, Decommissioning and Mine Closure Plan are implemented.

The final determination regarding environmental authorisation rests with the DMPR, following consideration of the Final BAR, specialist findings, comments received during the PPP and all applicable statutory requirements.

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LIST OF ABBREVIATIONS

Abbreviation	Description
BA	Basic Assessment
BAR	Basic Assessment Report
BID	Background Information Document
BS	Booysendal South
CA	Competent Authority
CAR	Civil Aviation Regulations
CAT	Civil Aviation Technical Standards
CBA	Critical Biodiversity Area
CFP	Chance Find Procedure
CRR	Comments and Responses Report
DBAR	Draft Basic Assessment Report
DEE	Department of Electricity and Energy
DFFE	Department of Forestry, Fisheries and the Environment
DMPR	Department of Mineral and Petroleum Resources
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EAPASA	Environmental Assessment Practitioners Association of South Africa
ECO	Environmental Control Officer
EGI	Electrical Grid Infrastructure
EIA	Environmental Impact Assessment
EIS	Ecological Importance and Sensitivity
EMPr	Environmental Management Programme
EO	Environmental Officer
ESA	Ecological Support Area
FBAR	Final Basic Assessment Report
FEPA	Freshwater Ecosystem Priority Area
FFP	Fossil Find Procedure
GA	General Authorisation
GCS	GCS Environment South Africa (Pty) Ltd
HGM	Hydrogeomorphic Units
GHS	Globally Harmonised System of Classification and Labelling of Chemicals
I&APs	Interested and Affected Parties
IDP	Integrated Development Plan
IEM	Integrated Environmental Management
IRP	Integrated Resource Plan
LOCMA	Limpopo-Olifants Catchment Management Agency
MBSP	Mpumalanga Biodiversity Sector Plan
MEGDP	Mpumalanga Economic Growth and Development Path
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEMBA	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)
NEMWA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
NWA	National Water Act, 1998 (Act No. 36 of 1998)
PAOI	Project Area of Influence
PES	Present Ecological State
PPP	Public Participation Process
PV	Photovoltaic
RAM	Risk Assessment Matrix
REC	Recommended Ecological Category
RFI	Radio-Frequency Interference
SACNASP	South African Council for Natural Scientific Professions
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
SCC	Species of Conservation Concern
Screening Tool	National Web-Based Environmental Screening Tool
SEI	Site Ecological Importance
SG	Surveyor-General
SSV	Site Sensitivity Verification
VAC	Visual Absorption Capacity

Abbreviation	Description
VAT	Value-Added Tax
WUL	Water Use Licence
WULA	Water Use Licence Application
ZTV	Zone of Theoretical Visibility

UNITS OF MEASUREMENT

Unit of Measure	Description
%	Percentage
°C	Degrees Celsius
dB	Decibel
dB(A)	A-weighted decibel
ha	Hectare
km	Kilometre
km/h	Kilometres per hour
kV	Kilovolt
m	Metre
m^2	Square metre
m^3	Cubic metre
mm	Millimetre
MW	Megawatt
MWac	Megawatt alternating current
R	South African rand
W	Watt

PART A

SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

1 INTRODUCTION

Booysendal Platinum (Pty) Ltd (Booysendal, the Applicant), a subsidiary of Northam Platinum Holdings Limited, proposes to develop the Kopanya Solar Photovoltaic 2 Project (the proposed Project), comprising a utility-scale solar photovoltaic (PV) facility with a generation capacity of up to 20 megawatts alternating current (MWac) and associated infrastructure at the Booysendal South (BS) Mine in Mpumalanga Province. The proposed Project will be located within the existing Booysendal Mining Right held by Booysendal, under Department of Mineral and Petroleum Resources (DMPR) Reference Number MP 30/5/1/2/3/2/1 (127) (10333) MR.

The proposed Project requires Environmental Authorisation (EA) in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA), read with the Environmental Impact Assessment (EIA) Regulations, 2014, as amended[1]. A Basic Assessment (BA) process is being undertaken to identify and assess potential environmental impacts and risks, consider reasonable and feasible alternatives, facilitate participation by Interested and Affected Parties (I&APs) and relevant organs of state, and provide the DMPR, as the Competent Authority (CA), with sufficient information to make an informed decision on the EA Application.

GCS Environment South Africa (Pty) Ltd (GCS) has been appointed as the independent Environmental Assessment Practitioner (EAP) responsible for undertaking the BA process, facilitating the Public Participation Process (PPP) and preparing the Basic Assessment Report (BAR), Environmental Management Programme (EMPr) and supporting documentation for submission to the DMPR.

1.1 Purpose and Objectives of the Basic Assessment Process

The purpose of this BAR is to document the environmental assessment undertaken for the proposed Project and present the information required in terms of Appendix 1 of the EIA Regulations, 2014. The BAR provides an assessment of the potential environmental impacts and risks associated with the proposed Project, considers reasonable and feasible alternatives, and identifies appropriate measures to avoid, minimise and manage potential impacts.

The BA process aims to ensure that environmental considerations are integrated into Project planning and decision-making through specialist investigations, impact assessment and public participation. Specifically, the process aims to:

- Establish the need and desirability of the proposed Project within its environmental, social and economic context.

[1] EIA Regulations, 2014, GN R 982 in GG 38282 of 4 December 2014, promulgated under sections 24(5) and 44 of the NEMA, with effect from 8 December 2014, as amended.

- Describe the proposed Project, its location, associated infrastructure and activities requiring EA.
- Identify and assess reasonable and feasible site, layout, design, technology and infrastructure route alternatives, including the no-go alternative.
- Describe the receiving environment, verify environmental sensitivities and incorporate the findings of the National Web-Based Environmental Screening Tool (Screening Tool), Site Sensitivity Verification (SSV) and specialist assessments.
- Identify and assess potential positive and negative environmental and socio-economic impacts and risks, including direct, indirect and cumulative impacts, throughout the Project lifecycle.
- Identify appropriate measures to avoid, minimise, rehabilitate and manage potential impacts, and assess the significance of residual impacts.
- Identify environmental management and monitoring measures for incorporation into the EMPr.
- Facilitate participation by I&APs and relevant organs of state and ensure that comments received are considered and addressed.
- Present the findings of the environmental assessment, motivate the preferred alternative and provide the EAP's reasoned opinion on the environmental acceptability of the proposed Project.
- Provide the DMPR, as the CA, with sufficient information to make an informed decision on the EA Application.

The BA process includes environmental screening, SSV, specialist assessments, consideration of alternatives, EIA, preparation of the BAR and EMPr, public review of the DBAR and supporting documentation, consideration of comments received and submission of the Final BAR to the DMPR for consideration and a decision on the EA Application.

This BAR must be read together with the accompanying EMPr, specialist reports, Comments and Responses Report (CRR) and other supporting documentation included in the appendices.

1.2 Structure of the Report

This BAR has been prepared in accordance with the applicable requirements of Appendix 1 of the EIA Regulations, 2014. The Report documents the assessment of potential environmental impacts and risks associated with the proposed Project, the consideration of alternatives, the PPP and the measures proposed to manage identified impacts.

The BAR is divided into Part A, which presents the environmental assessment and its findings, and Part B, which contains the EMPr. Supporting specialist studies, public participation records and

other relevant documentation are included in the appendices. An overview of the Report structure is provided in **Table 1-1**.

Table 1-1: Structure of the Basic Assessment Report

Section	Content
PART A: SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT	
Section 1: Introduction	Provides the purpose and objectives of the Basic Assessment (BA) process, the structure of the Report and the applicable reporting requirements.
Section 2: Contact Person and Correspondence Address	Provides the Applicant's details, the Environmental Assessment Practitioner's (EAP) qualifications, experience and independence, and details of the specialist team.
Section 3: Location of the Overall Activity	Describes the regional and local setting, affected properties, landownership, existing and surrounding land uses, site access, coordinates and relevant locality and layout plans.
Section 4: Description of the Scope of the Proposed Overall Activity	Summarises the proposed Project, existing and required authorisations, and applicable listed activities.
Section 5: Description of the Activities to be Undertaken	Describes the proposed solar photovoltaic facility, associated electrical and supporting infrastructure, construction activities, operational requirements, water use and waste management.
Section 6: Need and Desirability of the Proposed Activities	Motivates the need and desirability of the proposed Project, including its strategic, socio-economic and environmental considerations.
Section 7: Motivation for the Overall Preferred Site, Activities and Technology Alternative	Describes the alternatives considered and motivates the preferred development location, activities and technology, including consideration of the no-go alternative.
Section 8: Policy and Legislative Context	Identifies the environmental legislation, policies, plans and regulatory requirements applicable to the proposed Project.
Section 9: Basic Assessment Process	Describes the approach followed in undertaking the BA process in accordance with the applicable regulatory requirements.
Section 10: Details of the Public Participation Process Followed	Describes stakeholder identification, notification and engagement activities, availability of the Draft BAR, and the issues and concerns raised by Interested and Affected Parties.
Section 11: The Environmental Attributes	Describes the receiving environment and environmental sensitivities, incorporating the baseline conditions and findings of the specialist assessments.
Section 12: Impacts and Risks Identified	Presents the impact assessment methodology, identified environmental and socio-economic impacts, alternatives assessment, mitigation measures, residual impacts and cumulative impacts.
Section 13: Summary of Specialist Reports	Summarises the specialist investigations, findings, recommendations and implications for the proposed Project.
Section 14: Environmental Impact Statement	Consolidates the key assessment findings, positive and negative impacts, environmental sensitivities and preferred development layout.
Section 15: Proposed Impact Management Objectives and Outcomes for Inclusion in the EMPr	Identifies the environmental management objectives and desired outcomes to be incorporated into the EMPr.
Section 16: Aspects for Inclusion as Conditions of Authorisation	Identifies the environmental requirements recommended for inclusion as conditions of the Environmental Authorisation (EA).
Section 17: Description of Any Assumptions, Uncertainties and Gaps in Knowledge	Identifies the assumptions, limitations and uncertainties associated with the assessment and specialist investigations.
Section 18: Reasoned Opinion as to Whether the Proposed Activity Should or Should Not be Authorised	Presents the EAP's reasoned opinion regarding the environmental acceptability of the proposed Project and recommended conditions of authorisation.
Section 19: Period for Which the Environmental Authorisation is Required	Specifies the requested validity period of the EA.
Section 20: Undertaking	Provides the required undertaking associated with the environmental assessment documentation.
Section 21: Financial Provision	Describes the financial provision associated with rehabilitation and closure, including the basis for determining the required amount.

Section	Content
Section 22: Specific Information Required by the Competent Authority	Addresses relevant socio-economic and heritage considerations and any additional information required by the Competent Authority.
Section 23: Other Matters Required in Terms of Sections 24(4)(a) and (b) of the Act	Addresses any additional matters required in terms of the National Environmental Management Act, 1998.
PART B: ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT	
Section 24: Draft Environmental Management Programme	Establishes the environmental management framework, responsibilities, impact management objectives and measures applicable to planning, construction, operation, rehabilitation, decommissioning and closure.
Section 25: Financial Provision	Describes the closure objectives, rehabilitation requirements, calculation of financial provision and arrangements for providing the required financial guarantee.
Section 26: Environmental Monitoring Programme	Establishes the environmental monitoring requirements, performance indicators, monitoring responsibilities, reporting procedures and corrective management measures.
Section 27: Compliance Monitoring, Auditing and Reporting	Describes environmental inspections, compliance monitoring, auditing, reporting, record management and corrective-action requirements.
Section 28: Emergency Preparedness and Environmental Incident Management	Establishes procedures for managing environmental emergencies, spills, fires, incidents and statutory notification requirements.
Section 29: Environmental Awareness Plan	Describes environmental induction, training, communication of environmental risks and measures to prevent pollution and environmental degradation.
Section 30: Review and Amendment of the Environmental Management Programme	Describes the circumstances and procedures for reviewing and amending the EMPr.
Section 31: Specific Information Required by the Competent Authority	Addresses additional environmental management information required by the Competent Authority, where applicable.
Section 32: Undertaking	Provides the required undertaking relating to the implementation of the EMPr.
Appendices	Contain the supporting specialist reports, plans, maps, public participation documentation, relevant correspondence and other supporting information referenced in the BAR and EMPr.

1.3 Content of the Basic Assessment Report

Regulation 19(3) of the EIA Regulations, 2014, requires a BAR to contain the information prescribed in Appendix 1 or to comply with any applicable protocols or minimum information requirements published by the Minister. This BAR has been structured to address these requirements, with the relevant information presented in the main Report and supporting appendices.

Table 1-2 provides a cross-reference between the requirements of Appendix 1, Section 3(1), and the corresponding sections of this BAR to demonstrate how the prescribed information requirements have been addressed.

Table 1-2: Contents of the Basic Assessment Report

Appendix 1 Requirement	Contents of the Basic Assessment Report	Relevant Section in the Report
3(1)(a)	Details of the Environmental Assessment Practitioner (EAP) who prepared the Report and the expertise of the EAP, including a curriculum vitae.	Section 2
3(1)(b)	Location of the proposed activity, including the 21-digit Surveyor-General code for each cadastral land parcel, physical address and farm name, or property boundary coordinates where the required information is unavailable.	Section 3

Appendix 1 Requirement	Contents of the Basic Assessment Report	Relevant Section in the Report
3(1)(c)	A plan showing the location of the proposed activities and associated structures and infrastructure at an appropriate scale, including the description and coordinates of corridors for linear activities, where applicable.	Sections 3, 4 and 5
3(1)(d)	Description of the scope of the proposed activity, including all listed and specified activities triggered and applied for, and the activities to be undertaken, including associated structures and infrastructure.	Sections 4 and 5
3(1)(e)	Description of the applicable policy and legislative context, including legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and other relevant instruments, and how the proposed Project complies with and responds to these requirements.	Section 8
3(1)(f)	Motivation for the need and desirability of the proposed Project, including its need and desirability within the preferred location.	Section 6
3(1)(g)	Motivation for the preferred site, activity and technology alternative.	Section 7
3(1)(h)(i)	Details of all reasonable and feasible alternatives considered.	
3(1)(h)(ii)	Details of the Public Participation Process (PPP) undertaken in terms of Regulation 41, including copies of supporting documentation and stakeholder inputs.	Section 10
3(1)(h)(iii)	Summary of issues raised by Interested and Affected Parties (I&APs), including how these issues were incorporated into the assessment or the reasons for not including them.	
3(1)(h)(iv)	Description of the environmental attributes associated with the alternatives, focusing on geographical, physical, biological, social, economic, heritage and cultural aspects.	Sections 7 and 11
3(1)(h)(v)	Identification of impacts and risks associated with each alternative, including their nature, significance, consequence, extent, duration and probability, reversibility, potential irreplaceable loss of resources and the extent to which impacts can be avoided, managed or mitigated.	
3(1)(h)(vi)	Description of the methodology used to determine and rank the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives.	Section 12
3(1)(h)(vii)	Identification of positive and negative impacts of the proposed activity and alternatives on the environment and potentially affected communities, including geographical, physical, biological, social, economic, heritage and cultural aspects.	Section 12
3(1)(h)(viii)	Identification of possible mitigation measures and the level of residual environmental risk.	Sections 12, 15 and 24
3(1)(h)(ix)	Outcome of the site selection matrix used to evaluate the alternatives.	Section 7
3(1)(h)(x)	Motivation for not investigating alternatives, including alternative locations, where applicable.	
3(1)(h)(xi)	Concluding statement identifying the preferred alternatives, including the preferred location of the proposed activity.	Sections 7and 14
3(1)(i)(i)	Description of all environmental issues and risks identified during the environmental impact assessment process for the preferred location throughout the lifecycle of the proposed Project.	Sections 11 and 12

Appendix 1 Requirement	Contents of the Basic Assessment Report	Relevant Section in the Report
3(1)(i)(ii)	Assessment of the significance of each identified issue and risk, including the extent to which these can be avoided or addressed through mitigation measures.	Section 12
3(1)(j)(i)	Assessment of cumulative impacts associated with each potentially significant impact and risk.	
3(1)(j)(ii)	Assessment of the nature, significance and consequences of each potentially significant impact and risk.	
3(1)(j)(iii)	Assessment of the extent and duration of each potentially significant impact and risk.	
3(1)(j)(iv)	Assessment of the probability of each potentially significant impact and risk occurring.	
3(1)(j)(v)	Assessment of the degree to which each potentially significant impact and risk can be reversed.	
3(1)(j)(vi)	Assessment of the degree to which each potentially significant impact and risk may cause irreplaceable loss of resources.	
3(1)(j)(vii)	Assessment of the degree to which each potentially significant impact and risk can be avoided, managed or mitigated.	Sections 12, 15 and 24
3(1)(k)	Where applicable, summary of specialist findings and impact management measures identified in reports complying with Appendix 6, including how these findings and recommendations have been incorporated into the Final BAR.	Sections 11, 12 and 13;
3(1)(l)(i)	Environmental Impact Statement summarising the key findings of the environmental impact assessment.	Section 14
3(1)(l)(ii)	A map at an appropriate scale showing the proposed activity and associated infrastructure superimposed on the environmental sensitivities of the preferred site, including areas to be avoided and applicable buffers.	Sections 11 and 14
3(1)(l)(iii)	Summary of the positive and negative impacts and risks associated with the proposed activity and identified alternatives.	Sections 12 and 14
3(1)(m)	Proposed impact management outcomes for inclusion in the Environmental Management Programme (EMPr), based on the assessment and applicable specialist recommendations.	Section 15 and 24
3(1)(n)	Identification of any aspects conditional to the findings of the assessment, as identified by the EAP or specialists, that should be included as conditions of Environmental Authorisation (EA).	Section 16
3(1)(o)	Description of assumptions, uncertainties and gaps in knowledge relating to the assessment and proposed mitigation measures.	Section 17
3(1)(p)	Reasoned opinion of the EAP on whether the proposed Project should be authorised and, if authorisation is recommended, any conditions that should apply.	Section 18
3(1)(q)	Where the proposed activity does not include operational aspects, the period for which EA is required, the date on which the activity will be concluded and the finalised post-construction monitoring requirements.	Not applicable – the proposed Project includes operational activities. Section 19 addresses the requested validity period of the EA.
3(1)(r)(i)	Undertaking under oath or affirmation by the EAP regarding the correctness of information provided in the reports.	Section 20 and 33
3(1)(r)(ii)	Undertaking regarding the inclusion of comments and inputs received from stakeholders and I&APs.	
3(1)(r)(iii)	Undertaking regarding the inclusion of relevant inputs and recommendations from specialist reports.	
3(1)(r)(iv)	Undertaking regarding information provided by the EAP to I&APs and responses to comments or inputs received.	

Appendix 1 Requirement	Contents of the Basic Assessment Report	Relevant Section in the Report
3(1)(s)	Deleted by Government Notice 517 of 11 June 2021.	Not applicable
3(1)(t)	Any specific information required by the Competent Authority, where applicable.	Section 22 and 32
3(1)(u)	Any other matters required in terms of Sections 24(4)(a) and (b) of the National Environmental Management Act, 1998 (Act No. 107 of 1998).	Section 23

2 CONTACT PERSON AND CORRESPONDENCE ADDRESS

This section provides the details of the Applicant, EAP and Project Team.

2.1 Applicant

Table 2-1 below provides the contact details of the Applicant.

Table 2-1: Contact Details of the Applicant

Company Name:	Booysendal Platinum (Pty) Ltd
Company Registration Number:	2002/016771/07
Postal Address:	Postnet Suite #199 Private Bag X20097 Lydenburg, 1120 South Africa
Physical Address:	Farm Booysendal 43JT Greater Tubatse Municipality South Africa
Contact Person:	Mr Zacharia Tsotetsi
Telephone No.:	+27 87 158 6850
E-mail Address:	zacharia.tsotetsi@norplats.co.za

2.2 Environmental Assessment Practitioner

GCS has been appointed as the independent EAP responsible for undertaking the BA process in accordance with the NEMA, and the EIA Regulations, 2014.

GCS will be responsible for managing the EA Application process, coordinating the specialist assessments, facilitating the PPP, and compiling the BAR and EMPr, together with the relevant supporting documentation, for submission to the DMPR for consideration and decision-making.

The contact details and professional registrations of the appointed EAP are provided in **Table 2-2**. The EAP's curriculum vitae, qualifications and professional registrations are attached as **Appendix A**.

Table 2-2: Contact Details of the Environmental Assessment Practitioner

Name of Environmental Assessment Practitioner:	Paula Tolksdorff
Professional Affiliation / Registration:	Registered Environmental Assessment Practitioner (Environmental Assessment Practitioners Association of South Africa): 2019/509. Registered Professional Natural Scientist (South African Council for Natural Scientific Professions): (152904). International Association for Impact Assessment – South Africa Membership: 1745. International Association for Public Participation Membership: IAP2SA014.
Company Name:	GCS Environment South Africa (Pty) Ltd
Physical Address:	63 Wessel Road Rivonia, 2128

Postal Address:	P.O. Box 2597 Rivonia 2128
Telephone No.:	+27 (0)11 803 5726
Facsimile No.:	+27 (0)11 803 5745
E-mail Address:	paulat@gcs-sa.biz

2.2.1 Expertise of the Environmental Assessment Practitioner

2.2.1.1 The Qualifications of the Environmental Assessment Practitioner

Paula Tolksdorff holds a Baccalaureus Technologiae in Civil Engineering: Urban and Rural Development, obtained in 1997.

2.2.1.2 Summary of the Environmental Assessment Practitioner's Experience

Paula Tolksdorff has more than 30 years of environmental-sector experience across mining, industrial, energy, infrastructure and commercial projects in South Africa and elsewhere in Africa. Her experience includes BA and Scoping and Environmental Impact Reporting processes, EMPr, environmental compliance auditing, stakeholder engagement, water and waste management, environmental due diligence and multidisciplinary Project management.

2.2.2 Independence of the Environmental Assessment Practitioner and Specialists

GCS and the specialist team have been appointed to undertake their respective scopes of work independently and objectively. They have no business, financial, personal or other interest in the approval or refusal of the proposed Project, other than fair remuneration for professional services rendered.

The remuneration of the EAP and specialists is not dependent on the outcome of the application or on the findings, conclusions or recommendations of the environmental assessment and specialist reports.

The EAP and specialists have undertaken to disclose all material information and any circumstances that may compromise, or may reasonably be perceived to compromise, their independence or professional judgement. Signed declarations of independence are included in their respective reports.

2.3 Details of the Specialist Team

Table 2-3 provides details of the specialist team. The specialists' curricula vitae and declarations of independence are included in or appended to the respective specialist reports.

Table 2-3: Details of the Specialist Team

Specialist Study	Specialist Detail
Agricultural Potential Assessment **The Biodiversity Company**	
Full name:	Masilabela Seepamore
Title / position:	Soil Ecologist
Highest qualification:	Magister Scientiae Cum Laude – Soil Science
Years of experience:	3 years
Registration(s):	Registered Professional Natural Scientist –SACNASP No.113907

Specialist Study	Specialist Detail
Hydropedological Assessment The Biodiversity Company	
Full name:	Matthew Mamera
Title / position:	Environmental and Ecological Specialist
Highest qualification:	Doctor of Philosophy – Soil Science
Years of experience:	10 years
Registration(s):	Registered Professional Natural Scientist –SACNASP No. 116356
Freshwater Ecological Assessment The Biodiversity Company	
Full name:	Khume Mtsweni
Title / position:	Environmental and Ecological Specialist
Highest qualification:	Magister Scientiae – Aquatic Health
Years of experience:	8 years
Registration(s):	Registered Professional Natural Scientist –SACNASP No. 138592
Terrestrial Biodiversity, Plant and Animal Species Assessment The Biodiversity Company	
Full name:	Andine De Villiers
Title / position:	Terrestrial Ecologist
Highest qualification:	Magister Scientiae – Zoology with Distinction
Years of experience:	3 years
Registration(s):	Registered Professional Natural Scientist –SACNASP No. 164894
Avifaunal Impact Assessment The Biodiversity Company	
Full name:	Ryno Kemp
Title / position:	Avifauna and Ecological Specialist
Highest qualification:	PhD in Zoology
Years of experience:	years
Registration(s):	Registered Professional Natural Scientist –SACNASP No.117462/17
Heritage Impact Assessment Digby Wells Environmental	
Full name:	Danny Viljoen
Title / position:	Field Archaeologist
Highest qualification:	BA (Hons) Archaeology
Years of experience:	8 years
Registration(s):	ASAPA #744
Palaeontological Impact Assessment Digby Wells Environmental	
Full name:	Danny Viljoen
Title / position:	Field Archaeologist
Highest qualification:	BA (Hons) Archaeology
Years of experience:	8 years
Registration(s):	ASAPA #744
Visual Impact Assessment Donaway Environmental	
Full name:	Johan Botha
Title / position:	Environmental Consultant
Highest qualification:	Bachelor of Science in Environmental Science, North-West University, 2011
Years of experience:	15 years
Registration(s):	Not applicable
Full name:	Michael Cloete
Title / position:	Visual and Social Impact Assessment
Highest qualification:	Master of Science (MSc) in Geography and Environmental Management, North-West University, 2020
Years of experience:	6 years
Registration(s):	Not applicable
Closure and Rehabilitation Assessment	
Full name:	Anja Van Deventer
Title / position:	Environmental Specialist (Rehabilitation and mine closure)
Highest qualification:	Master of Environmental Science in Sustainable Rehabilitation, 2004
Years of experience:	21 years

Specialist Study	Specialist Detail
Registration(s):	Land Rehabilitation Society of Southern Africa Council of Minerals and Energy Ministers of South Africa Registered Professional Natural Scientist –SACNASP No. 145156

3 LOCATION OF THE OVERALL ACTIVITY

This section describes the geographical location of the proposed Project, affected properties, property rights and landowner consent arrangements, existing and surrounding land uses, site access and spatial context. The information is supported by regional locality, cadastral and Project layout plans.

3.1 Regional and Local Setting

The proposed Project is located in Mpumalanga Province, within the jurisdiction of the Thaba Chweu Local Municipality and Ehlanzeni District Municipality. The Project site is situated approximately 30 km west of Mashishing, within the existing BS Mine area.

The proposed Project will occupy an approximate development footprint of 41 hectares (ha), comprising the solar PV facility and associated infrastructure. The regional and local setting is summarised in **Table 3-1,** while the regional locality is illustrated in **Figure 3-1**.

Table 3-1: Regional and Local Setting of the Proposed Project

Attribute	Description
Province	Mpumalanga Province
District municipality	Ehlanzeni District Municipality
Local municipality	Thaba Chweu Local Municipality
Nearest town	Mashishing
Approximate distance and direction from the nearest town	Approximately 30 kilometres west of Mashishing
Project location	Booysendal South Mine
Affected properties	Portion 8, the Remaining Extent of Portion 15 and Portion 17 of the Farm No. 53 JT
Approximate Project footprint	41 hectares

The Project area forms part of an established mining landscape characterised by existing Mine infrastructure, access roads, electrical infrastructure and areas modified by mining-related activities. Remnant vegetation, wetlands and drainage features occur within the broader landscape, and these environmental features have been considered in the specialist assessments and development of the proposed Project layout.

3.2 Property Description

The proposed Project extends across Portion 8, the Remaining Extent of Portion 15 and Portion 17 of Farm No. 53 JT. The solar PV facility and associated infrastructure will be located on the Remaining Extent of Portion 15, while the proposed grid connection infrastructure, including the overhead power line, will extend across Portions 8 and 17.

The affected properties and associated Project components are summarised in **Table 3-2** and illustrated in **Figure 3-3.**

Table 3-2: Properties Affected by the Proposed Project

Property Description	Project Component
Portion 8 of the Farm No. 53 JT	Associated grid connection infrastructure, including a section of the proposed overhead power line
Remaining Extent of Portion 15 of the Farm No. 53 JT	Solar photovoltaic facility and associated infrastructure
Portion 17 of the Farm No. 53 JT	Associated grid connection infrastructure, including a section of the proposed overhead power line

3.3 Surveyor General Codes

The Surveyor General codes for the cadastral properties affected by the proposed Project are presented in **Table 3-3**.

Table 3-3: Surveyor General Codes for the Affected Properties

Farm Portion	Surveyor General Code
Portion 8 of the Farm No. 53 JT	T0JT00000000005300008
Remaining Extent of Portion 15 of the Farm No. 53 JT	T0JT00000000005300015
Portion 17 of the Farm No. 53 JT	T0JT00000000005300017

3.4 Property Ownership and Landowner Consent

The affected properties are subject to a notarial lease concluded on 7 April 2015 between the Bokoni Ba Phetla Communal Property Association, as lessor, and Booysendal, as lessee. The lease grants Booysendal rights of occupation and land use for mining and associated activities.

The affected properties and associated land rights and consent arrangements are summarised in **Table 3-4.**

Table 3-4: Property Ownership and Landowner Consent

Property Description	Lessor / Land Rights Holder	Lawful Occupier/Lessee	Title Deed Reference	Consent Status
Portion 8 of the Farm No. 53 JT	Bokoni Ba Phetla Communal Property Association	Booysendal Platinum (Pty) Ltd	T123831/2007	Right of occupation and use confirmed through the notarial lease and Booysendal consent letter dated 20 July 2026
Remaining Extent of Portion 15 of the Farm No. 53 JT				
Portion 17 of the Farm No. 53 JT				

3.5 Existing Land Uses

The proposed Project is situated within the existing BS Mine area, where mining and associated infrastructure constitute the established land uses. The surrounding mining infrastructure provides an existing operational and electrical infrastructure context for the proposed Project.

Existing land uses and infrastructure within and adjacent to the proposed Project area include:

- Mining and mine-support activities, including operational buildings and associated infrastructure;
- Existing Mine access roads, internal roads and tracks;
- Electricity transmission and distribution infrastructure;
- Security fencing and controlled-access areas;

- Previously disturbed and modified land associated with mining activities;
- Areas of remnant natural vegetation;
- Wetlands and drainage features; and
- Undeveloped portions of the broader Mine property.

The proposed Project is intended to supplement the electricity supply to BS Mine and is therefore functionally aligned with the existing mining operations and associated energy infrastructure. The location and layout of the proposed infrastructure have been considered in relation to existing land uses, operational requirements and identified environmental sensitivities.

3.6 Surrounding Land Uses

The land uses surrounding the proposed Project are predominantly associated with BS Mine, including mining infrastructure, internal roads, electrical infrastructure and previously disturbed areas. The broader landscape also contains undeveloped land, remnant vegetation, wetlands and drainage features.

The proposed Project layout has been informed by the existing land use context, engineering requirements and environmental sensitivities identified through the specialist assessments. The assessment of potential impacts on surrounding land uses and environmental features is presented in the relevant sections of this BAR.

3.7 Access to the Project Site

Regional access to the proposed Project site will be obtained from the R577 regional road, with access to the development area provided through the existing BS Mine access roads and internal road network.

Existing roads and previously disturbed access routes will be utilised as far as practicable to minimise additional land disturbance. New internal roads and access routes will be limited to those required for the construction, operation, maintenance and eventual decommissioning of the proposed Project.

The proposed access arrangements are illustrated in **Figure 3-4**.

3.8 Project Coordinates

The geographical coordinates of the proposed solar PV facility, development boundary, overhead power line and access road are provided in **Table 3-5**. The coordinates are presented in degrees, minutes and seconds and correspond to the proposed development layout.

Table 3-5: Coordinates of the Proposed Project

Project Component or Location	Latitude	Longitude
Approximate centre point of the solar photovoltaic facility	25° 09'53.281"S	30° 09'5.447"E
Outer edges boundary		
3A	25° 09′ 55.095″ S	30° 08′ 53.447″ E
3B	25° 09′ 50.355″ S	30° 08′ 58.166″ E

Project Component or Location	Latitude	Longitude
3C	25° 09′ 39.838″ S	30° 08′ 57.679″ E
3D	25° 09′ 39.965″ S	30° 09′ 03.667″ E
3E	25° 09′ 35.127″ S	30° 09′ 03.502″ E
3F	25° 09′ 35.115″ S	30° 09′ 09.476″ E
3G	25° 09′ 34.889″ S	30° 09′ 09.932″ E
3H	25° 09′ 38.113″ S	30° 09′ 11.123″ E
3I	25° 09′ 38.029″ S	30° 09′ 13.923″ E
3J	25° 10′ 00.517″ S	30° 09′ 13.817″ E
3K	25° 10′ 01.695″ S	30° 09′ 12.770″ E
3L	25° 10′ 02.829″ S	30° 09′ 12.662″ E
3M	25° 10′ 06.244″ S	30° 09′ 12.857″ E
3N	25° 10′ 05.829″ S	30° 09′ 14.069″ E
3O	25° 10′ 14.749″ S	30° 09′ 13.812″ E
3P	25° 09′ 55.095″ S	30° 08′ 53.447″ E
Overhead power line		
Overhead power line route – Start	25° 09′ 39.801″ S	30° 09′ 09.481″ E
Overhead power line route – Middle	25°9'36.957"S	30°9'30.929"E
Overhead power line route – End	25° 09′ 34.826″ S	30° 09′ 52.628″ E
Access road		
Access Road – Start	25° 09′ 32.966″ S	30° 08′ 41.002″ E
Access Road – Middle	25° 09'38.969"S	30° 08'48.608"E
Access Road – End	25° 09′ 39.937″ S	30° 08′ 59.303″ E

3.9 Locality, Cadastral and Layout Plans

The regional locality, cadastral context and proposed layout are shown in **Figure 3-1** to **Figure 3-4**. The figures identify the affected properties, infrastructure components, access arrangements, grid connection infrastructure and specialist identified constraints.

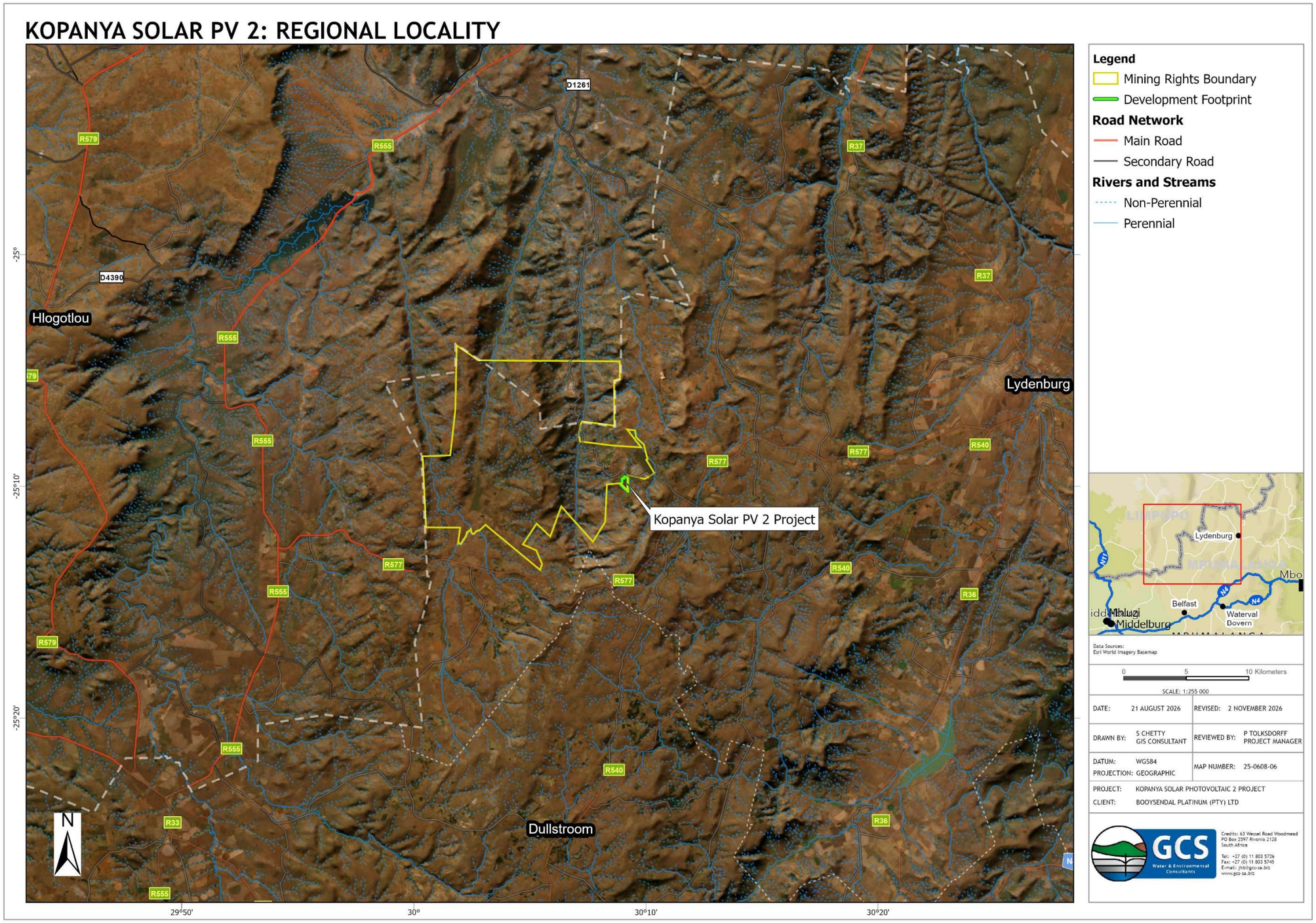


Figure 3-1: Regional Locality Map

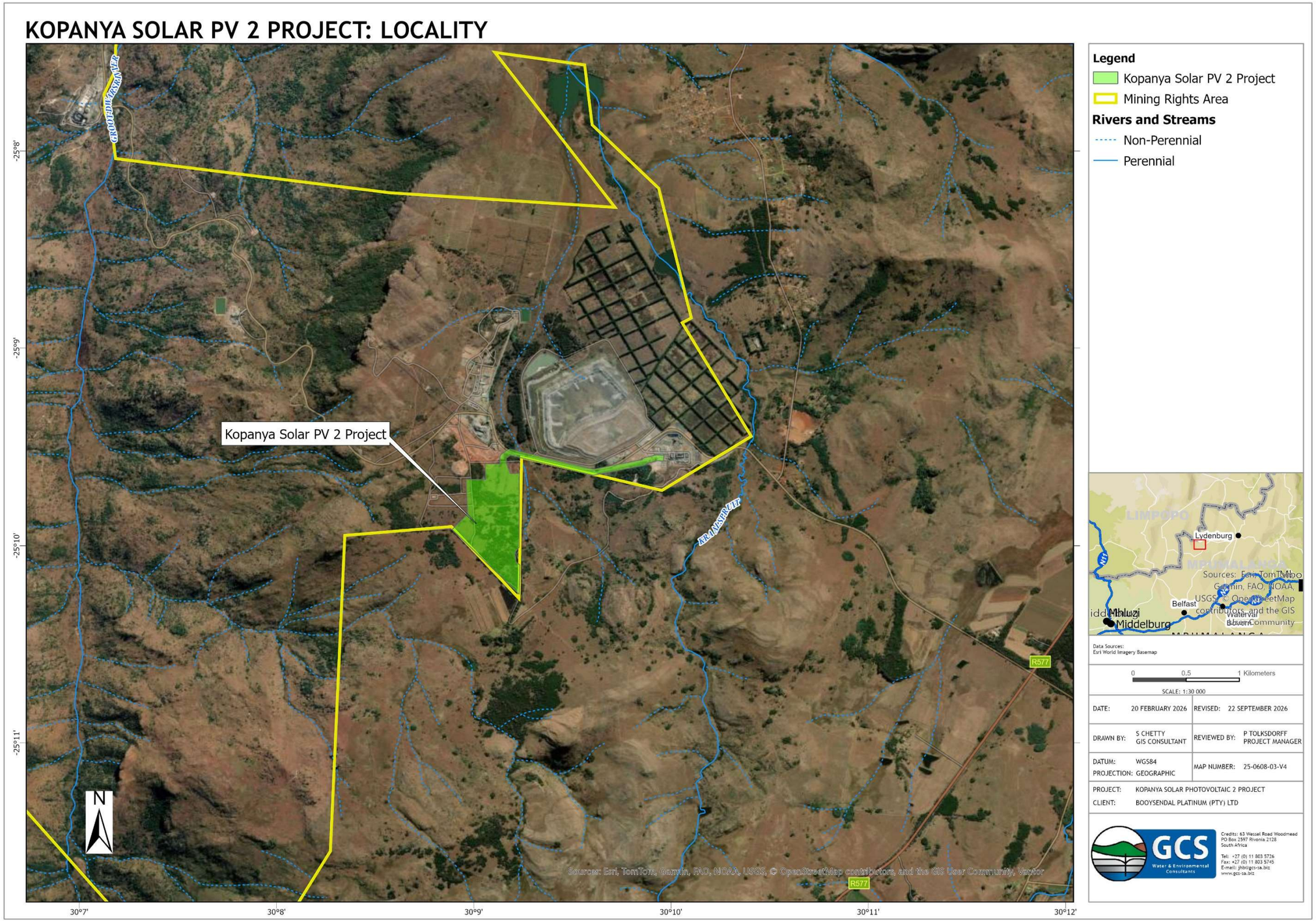


Figure 3-2: Locality Map

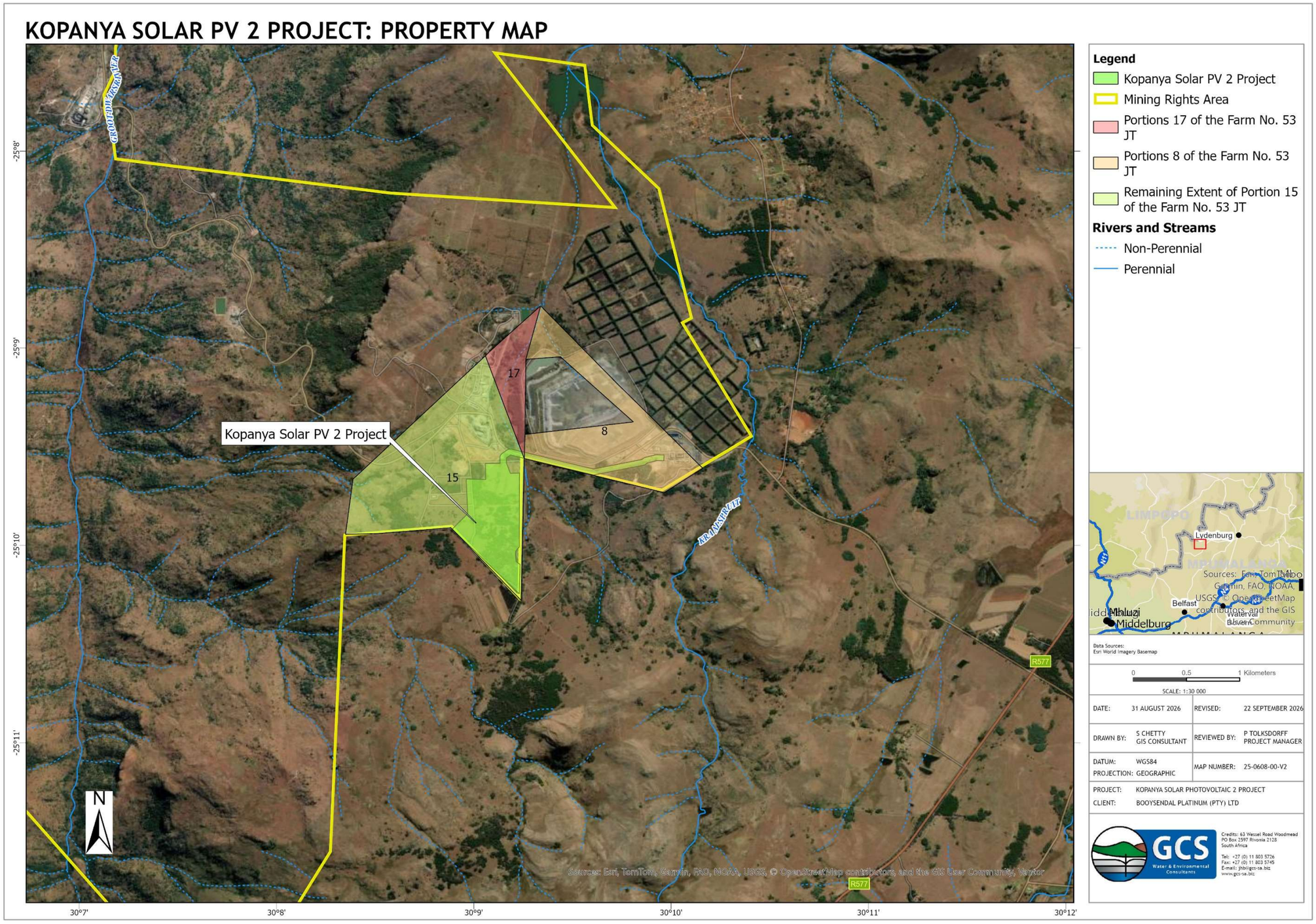


Figure 3-3: Cadastral Properties Affected by the Proposed Project

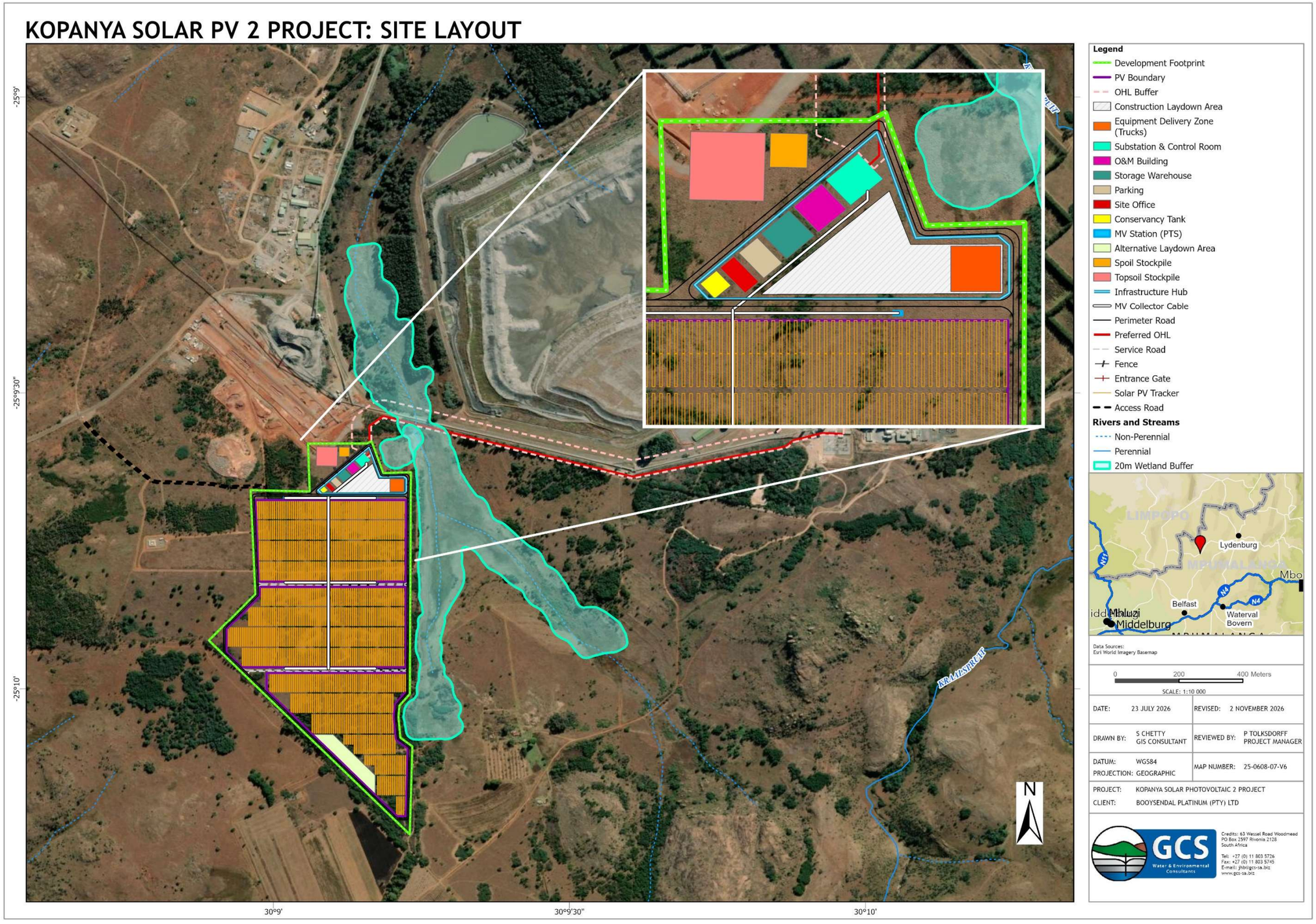


Figure 3-4: Proposed Project Layout Plan

4 DESCRIPTION OF THE SCOPE OF THE PROPOSED OVERALL ACTIVITY

4.1 Existing Authorisations

Booysendal holds various mining, environmental and water use authorisations for the existing BS Mine. These authorisations provide for the established mining operations and associated infrastructure, including mineral processing facilities, tailings storage facilities, ventilation infrastructure, water management systems and supporting facilities. The authorisations have been amended over time to accommodate the development and expansion of the mining operations.

The existing authorisations have been issued in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), the NEMA, and the National Water Act, 1998 (Act No. 36 of 1998) (NWA). The relevant existing authorisations and approvals provided for this assessment are summarised in **Table 4-1**.

Table 4-1: Existing Authorisations for Booysendal South Mine

Date	Authorisation / Reference	Description
July 2003	Everest Platinum Mine Environmental Management Programme	Approved Environmental Management Programme
April 2009	Everest Platinum Mine Environmental Management Programme Amendment	Approved amendment addressing changes to the surface mine layout.
September 2009	Everest Platinum Mine Environmental Management Programme	Approved Environmental Management Programme for the extension of mining activities.
May 2010	Environmental Authorisation: 17/2/1/15 E-5	Environmental Authorisation for the extension of mining activities at Everest Platinum Mine.
January 2018	Section 24G Environmental Authorisation: LP 188 and MP 127 EM	Rectification authorisation for activities undertaken as part of the Booysendal South expansion.
October 2021	Environmental Authorisation: MP30/5/1/2/3/2/1 (127) EM	Amendment of the Environmental Authorisation associated with the Booysendal South Phase 2 development.
September 2023	Environmental Authorisation Amendment: MP30/5/1/2/3/2/1 (127) EM	Amendment relating to the development of two ventilation shafts at Booysendal South Mine.
December 2024	Environmental Authorisation Amendment: MP30/5/1/2/3/2/1 (127) EM	Amendment associated with the Booysendal South Tailings Storage Facility and related infrastructure.
April 2025	Water Use Licence: 06/B41G/ABCFGIJ/15901 (WU30470)	Water Use Licence authorising specified water uses associated with the existing Booysendal South Mine operations.

The existing authorisations provide the regulatory context for the proposed Project. However, the proposed solar PV facility and associated infrastructure are subject to separate environmental and water use authorisation requirements, as outlined in Section 4.3.

4.2 High Level Project Description

Booysendal proposes to develop the proposed Project, comprising a solar PV facility with a generation capacity of up to 20 MWac and associated infrastructure at the existing BS Mine in Mpumalanga Province. The proposed Project is intended to supplement the Mine's electricity supply, improve energy security and reduce reliance on electricity supplied through the national grid.

The proposed Project will occupy an approximate development footprint of 41 ha and will comprise

up to 35 000 bifacial solar PV modules mounted on single-axis tracking structures, together with inverters, transformers, an onsite substation and associated electrical infrastructure. The development will also include an overhead power line of up to 132 kilovolts (kV), internal access roads, temporary construction facilities, operational and maintenance infrastructure, security fencing and supporting services.

The solar PV facility will be located on the Remaining Extent of Portion 15 of Farm No. 53 JT, with associated grid connection infrastructure extending across Portions 8 and 17 of the same farm. The proposed Project is situated within the existing BS Mine area and will make use of established Mine access roads and infrastructure where practicable.

The proposed Project will be developed within the existing mining landscape, with the layout informed by engineering requirements, existing land uses and environmental sensitivities identified through the specialist assessments. Further details of the proposed infrastructure, construction activities, operational requirements and associated services are provided in Section 5 of this Report.

4.3 Required Authorisations

The proposed Project requires an EA in terms of NEMA and the EIA Regulations, 2014. A BA process is being undertaken, with the DMPR acting as the CA.

The proposed Project also requires water use authorisation in terms of the NWA. A pre-application meeting was held with the Department of Water and Sanitation (DWS) and the Limpopo-Olifants Catchment Management Agency (LOCMA) on 1 September 2026, under application reference WU52143. During the meeting, LOCMA confirmed that the applicable water uses should be processed through the General Authorisation (GA) process.

The anticipated water uses include Sections 21(c), 21(i) and 21(g) of the NWA, associated with infrastructure development within the regulated areas of watercourses and the proposed wastewater management arrangements. The GA application will be supported by the relevant specialist assessments, risk assessment, Project layout and associated technical information, as required by LOCMA.

In addition, the proposed Project may require heritage approvals or permits in terms of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA), and permits relating to protected species in terms of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEMBA), and applicable provincial legislation. These requirements will be determined through the relevant specialist assessments and consultation with the responsible authorities.

The applicable listed activities under NEMA and the anticipated water uses under the NWA are presented in Section 4.4.

4.4 Listed and Specified Activities

The proposed Project triggers listed activities in terms of the EIA Regulations, 2014, and the associated Listing Notices published under the NEMA. These activities relate to the development of

renewable energy generation infrastructure, electricity transmission and distribution infrastructure, vegetation clearance, access roads and infrastructure within or near watercourses.

The applicable listed activities for which EA is sought are summarised in **Table 4-2**.

Table 4-2: Listed Activities to be Authorised under the National Environmental Management Act, 1998

Name of Activity	Aerial Extent of Activity (hectares (ha) or square metres (m^2))	Listed Activity	Applicable Listing Notice	Listed Activity Description as per Regulations / Notice
The Project comprises a solar PV facility with an installed generation capacity of up to 20 MW.	Approximately 34.13 ha	X	Listing Notice 1: GN R 983 Activity 1 (i)	**The development of facilities or infrastructure for the generation of electricity from a renewable resource where (i) the electricity output is more than 10 megawatts but less than 20 megawatts**; or (ii) the output is 10 megawatts or less but the total extent of the facility covers an area in excess of 1 hectare; excluding where such development of facilities or infrastructure is for photovoltaic installations and occurs (a) within an urban area; or (b) on existing infrastructure.
The Project includes an up to 132 kV overhead power line, together with associated grid connection infrastructure.	Approximately 1350.09 m in length	X	Listing Notice 1: GN R 983 Activity 11 (i)	**The development of facilities or infrastructure for the transmission and distribution of electricity— (i) outside urban areas or industrial complexes with a capacity of more than 33 kilovolts (kV) but less than 275 kV**; or (ii) inside urban areas or industrial complexes with a capacity of 275 kV or more; excluding the development of bypass infrastructure for the transmission and distribution of electricity where such bypass infrastructure is — (a) temporarily required to allow for maintenance of existing infrastructure; (b) 2 kilometres (km) or shorter in length; (c) within an existing transmission line servitude; and (d) will be removed within 18 months of the commencement of development.
The development of infrastructure or structures with a physical footprint of 100 m^2 or more where such development occurs within a watercourse, in front of a development setback, or within 32 m of a watercourse where no development setback exists, subject to exclusions.	Approximately 42.14 ha	X	Listing Notice 1: GN R 983 Activity 12 (ii) (a) and (c)	**The development of- (i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres**; or (ii) infrastructure or structures with a physical footprint of 100 square metres or more, where such development occurs- **(a) within a watercourse**; (b) in front of a development setback; or **(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse**, excluding- (aa) the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour; (bb) where such development activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies; (cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014, in which case that activity applies; (dd) where such development occurs within an urban area; (ee) where such development occurs within existing roads road reserves or railway line reserves; or (ff) the development of temporary infrastructure or structures where such infrastructure or structures will be removed within 6 weeks of the commencement of the development and where indigenous vegetation will not be cleared.
The infilling or depositing of any material of more than 10 m^3 into, or the	To be determined	X	Listing Notice 1: GN R 983 Activity 19	**The infilling or depositing of any material of more than 10 cubic metres (m^3) into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 m^3 from a watercourse**; but excluding

Name of Activity	Aerial Extent of Activity (hectares (ha) or square metres (m^2))	Listed Activity	Applicable Listing Notice	Listed Activity Description as per Regulations / Notice
dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 m^3 from a watercourse.				where such infilling, depositing, dredging, excavation, removal or moving - (a) will occur behind a development setback; (b) is for maintenance purposes undertaken in accordance with a maintenance management plan; (c) falls within the ambit of activity 21 in this Notice, in which case that activity applies; (d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or (e) where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.
The clearance of an area of 1 ha or more, but less than 20 ha, of indigenous vegetation.	Approximately 15.95 ha	X	Listing Notice 1: GN R 983 Activity 27	**The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation**, except where such clearance of indigenous vegetation is required for (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.
Development of a road wider than 4 m.	6m in width and approximately 609.92 m in length	X	Listing Notice 3: GN R 985 Activity 4 (f) (i) (cc) and (ee)	**The development of a road wider than 4 metres with a reserve less than 13.5 metres.** **(f) Mpumalanga** **(i) Outside urban areas:** (aa) A protected area identified in terms of NEMPAA, excluding disturbed areas; (bb) National Protected Area Expansion Strategy Focus areas; **(cc) Sensitive areas as identified in an environmental Management framework as contemplated in Chapter 5 of the Act and as adopted by the competent authority**; (dd) Sites or areas identified in terms of an international convention; **(ee) Critical biodiversity areas as identified in Systematic biodiversity plans adopted by the competent authority or in bioregional plans;** (ff) Core areas in biosphere reserves; or (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve, excluding disturbed areas, where such areas comprise indigenous vegetation; or (ii) Inside urban areas: (aa) Areas zoned for use as public open space; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose.
The clearance of 300 m^2 or more of indigenous vegetation within specified sensitive geographical areas.	Approximately 15.9 5 ha	X	Listing Notice 3: GN R 985 Activity 12 (f) (i) and (ii)	**The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.** **(f) Mpumalanga** **(i) Within any critically endangered or endangered ecosystem listed in terms of**

Name of Activity	Aerial Extent of Activity (hectares (ha) or square metres (m^2))	Listed Activity	Applicable Listing Notice	Listed Activity Description as per Regulations / Notice
				section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004; (ii) Within critical biodiversity areas identified in bioregional plans; or (iii) On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning or proclamation in terms of NEMPAA.
The development of infrastructure or structures with a physical footprint of 10 m^2 or more where such development occurs within a watercourse, in front of a development setback, or within 32 m of a watercourse, within specified sensitive geographical areas.	Approximately 42.14 ha	X	Listing Notice 3: GN R 985 Activity 14 (ii) (a) (c) (f) (i) (dd) and (ff)	**The development of** (i) dams or weirs, where the dam or weir, including infrastructure and water surface area exceeds 10 square metres; or **(ii) infrastructure or structures with a physical footprint of 10 square metres or more; where such development occurs (a) within a watercourse;** (b) in front of a development setback; or **(c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse**; excluding the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour. **(f) Mpumalanga** **(i) Outside urban areas:** (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) World Heritage Sites; (**dd) Sensitive areas as identified in an environmental Management framework as contemplated in Chapter 5 of the Act and as adopted by the competent authority**; (ee) Sites or areas identified in terms of an international convention; (ff) **Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans**; (gg) Core areas in biosphere reserves; or (hh) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve, where such areas comprise indigenous vegetation; or (ii) Inside urban areas: (aa) Areas zoned for use as public open space; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority, zoned for a conservation purpose.

The proposed Project triggers water uses in terms of Section 21 of the NWA, associated with the development of infrastructure within watercourses and their regulated areas, as well as wastewater management arrangements.

A pre-application meeting was held with the LOCMA on 1 September 2026, during which it was confirmed that the applicable water uses would be addressed through a GA process. The application has been registered under reference WU52143.

The applicable water uses are summarised in **Table 4-3**.

Table 4-3: Water Uses in Terms of Section 21 of the National Water Act, 1998

Section 21 Water Use	Proposed Project Activity
Section 21(c): Impeding or diverting the flow of water in a watercourse.	Construction of access roads, cable crossings, overhead power line infrastructure and associated works within watercourses or their regulated areas, where these activities may impede or divert water flow.
Section 21(i): Altering the bed, banks, course or characteristics of a watercourse.	Earthworks, excavation, vegetation clearance and construction of infrastructure within watercourses or their regulated areas, where these activities may alter the physical characteristics of a watercourse.
Section 21(g): Disposing of waste in a manner which may detrimentally impact a water resource.	Potentially applicable to wastewater management or disposal infrastructure associated with the construction and operational facilities, subject to confirmation of the proposed waste and wastewater management arrangements.

The GA application will be supported by the relevant specialist assessments, water use risk assessment, Project layout and associated technical information. The application will be submitted to LOCMA for consideration and confirmation of registration in accordance with the applicable GA requirements.

5 DESCRIPTION OF THE ACTIVITIES TO BE UNDERTAKEN

This section describes the proposed Project's components, associated infrastructure, construction activities, operational requirements and decommissioning considerations. The need and desirability of the proposed Project are addressed in Section 6.

5.1 Purpose of Project

The proposed Project is intended to address the increasing electricity requirements of BS Mine and reduce the operational risks associated with reliance on electricity supplied through the national grid. Mining and mineral processing activities require a reliable and predictable electricity supply to support safe operations, production continuity, ventilation, pumping, processing and other essential services. Electricity supply interruptions, grid constraints and increasing electricity costs can adversely affect operational efficiency and the long-term sustainability of electricity-intensive mining operations.

The proposed Project will comprise a solar PV facility with a generation capacity of up to 20 MWac. Electricity generated will primarily supplement the energy requirements of BS Mine. The development forms part of Northam Platinum Holdings Limited's broader energy resilience and sustainability strategy, aimed at diversifying electricity supply, improving energy security and

reducing exposure to increasing electricity costs.

At a national level, the Integrated Resource Plan (IRP) 2025 recognises the need for additional electricity generation capacity and provides a framework for balancing electricity security, affordability and environmental sustainability. The plan identifies renewable energy technologies as an important component of South Africa's future electricity generation mix (DEE, 2025). The proposed Project is aligned with these objectives through the development of additional renewable electricity generation capacity for an existing industrial operation.

The proposed Project will contribute up to 20 MWac of renewable generation capacity, reducing the Mine's dependence on grid-supplied electricity and supporting a more diversified electricity supply arrangement. The objectives are to improve operational energy resilience, support more predictable electricity costs, reduce reliance on the national grid and contribute to the continued safe and efficient operation of BS Mine.

5.2 Project Overview

The proposed Project comprises the development, operation and potential decommissioning of a solar PV facility with a generation capacity of up to 20 MWac, together with associated electrical, grid connection and supporting infrastructure, within the existing BS Mine area. Electricity generated by the facility will primarily be used to supplement the Mine's electricity requirements, with any surplus export subject to the applicable grid connection arrangements.

The proposed development will include solar PV arrays, tracking structures, inverters, transformers, substations, an overhead power line, internal and access roads, temporary construction facilities, permanent operational infrastructure and associated services. The facility will be designed to integrate with existing mining and electrical infrastructure, with the development layout informed by engineering requirements and identified environmental sensitivities.

5.3 Project Components

5.3.1 Overview of the Proposed Facility

The proposed solar PV facility will have a generation capacity of up to 20 MWac and will comprise bifacial solar PV modules mounted on single-axis tracking structures. The tracking system will enable the panels to follow the movement of the sun throughout the day, improving solar energy capture and electricity generation efficiency.

The proposed facility will be located within an established mining landscape and will utilise existing access roads and supporting infrastructure where practicable. The modular nature of the development and the use of driven pile foundations will assist in limiting extensive earthworks and permanent ground disturbance.

The proposed Project layout, including the solar PV facility and associated infrastructure, is presented in **Figure 3-4.**

5.3.2 Solar PV Arrays and Tracking System

The proposed facility will comprise up to approximately 35 000 bifacial solar PV modules, each with a typical rated capacity exceeding 600 watts (W). The modules will be mounted on single-axis tracking systems designed to optimise solar exposure and electricity generation throughout the day.

The mounting structures will comprise steel support sections, generally founded on driven piles. This approach will reduce the need for extensive concrete foundations and associated excavation. The final foundation design will consider site-specific geotechnical conditions, structural loading, wind resistance and long-term operational requirements. Localised concrete foundations or alternative foundation arrangements may be required where ground conditions prevent the use of driven piles.

5.3.3 Electrical Infrastructure and Grid Connection

The proposed Project will include electrical infrastructure necessary to collect, convert, transform and transmit electricity generated by the solar PV arrays. The key components will comprise:

- An overhead power line of up to 132 kilovolts (kV) connecting the solar PV facility to the associated grid connection infrastructure;
- An onsite PV substation for the collection and transformation of electricity generated by the facility;
- A substation adjacent to the existing Eskom substation; and
- Inverters, power transformer stations, electrical cabling, switchgear and associated electrical equipment, including prefabricated electrical units or electrical houses.

Electricity generated by the facility will primarily supply BS Mine, with any surplus export subject to the final electrical design, grid connection arrangements and applicable approvals.

5.3.4 Temporary Construction Infrastructure

Temporary infrastructure will be established to support site preparation, civil works, equipment installation, electrical connections and commissioning. This infrastructure will include:

- A construction yard and laydown areas occupying approximately 1 hectare (ha);
- Temporary site offices, material storage areas and ablution facilities;
- Internal access roads and designated construction traffic routes; and
- Temporary water, electricity and other services required for construction activities.

Construction is anticipated to extend over approximately 15 months, with a peak workforce of approximately 300 personnel, comprising skilled and semi-skilled workers involved in civil works, mechanical installation, electrical works and commissioning.

Temporary infrastructure will be removed following completion of construction, unless retained for authorised operational purposes. Areas no longer required will be rehabilitated in accordance with

the EMPr.

5.3.5 Excavation and Localised Blasting

Construction activities will include excavation for cable trenches, foundations, electrical infrastructure and associated services. Conventional excavation methods will be used wherever practicable to minimise ground disturbance and associated environmental impacts.

Limited, shallow and localised blasting may be required where hard rock is encountered during excavation of cable trenches or foundations for infrastructure footings. Blasting will be undertaken only where conventional excavation methods are unsuitable and will be subject to applicable safety requirements and environmental management measures, including controls for vibration, noise, flyrock and potential disturbance to surrounding infrastructure and sensitive receptors.

5.3.6 Permanent Operational Infrastructure

Permanent infrastructure required for the operation and maintenance of the proposed Project will include:

- Buildings for operations, maintenance, control and equipment storage;
- An operations and maintenance warehouse;
- Parking areas for operational personnel and service vehicles; and
- Security infrastructure, including access control facilities.

The proposed facility is anticipated to have an operational lifespan of approximately 25 years. During this period, an estimated 20 personnel will be employed for routine operations, maintenance, monitoring and security functions.

Operational activities will primarily comprise electricity generation, remote monitoring, equipment inspection, panel cleaning, vegetation management, routine servicing and replacement of defective or end-of-life components.

5.3.7 Supporting Infrastructure and Services

Supporting infrastructure will include internal and access roads, water supply arrangements, wastewater conservancy tanks, stormwater management infrastructure and security fencing.

The proposed security infrastructure will include perimeter fencing extending approximately 3,100 metres (m), together with access control and monitoring systems. Existing Mine access roads and services will be utilised where practicable to minimise additional infrastructure requirements and disturbance.

Stormwater management infrastructure will be designed to maintain natural drainage patterns, promote dispersed runoff and infiltration, and minimise erosion, sedimentation and concentrated discharge into wetlands and drainage features. Depending on the final engineering design, measures may include vegetated swales, diversion berms, cross-drainage structures, energy dissipation

measures and sediment control infrastructure.

5.3.8 Water Requirements and Management

Water will be required during construction for dust suppression, concrete works and general construction activities. The estimated total construction phase water requirement is approximately 1,790 cubic metres (m^3).

During operation, water will primarily be required for domestic purposes and routine maintenance, including panel cleaning where necessary. The estimated operational water requirement is approximately 518 m^3 per annum.

Water will be supplied through existing authorised Mine water supplies and/or boreholes, subject to the applicable water use authorisations. No new abstraction infrastructure is proposed as part of the development. Water use will be managed in accordance with the Mine's established water management procedures.

No process wastewater is anticipated during normal operation. Domestic wastewater will be collected in conservancy tanks and periodically removed by an appropriately authorised service provider for disposal at an authorised facility. Wastewater management arrangements will be incorporated into the proposed Project's water use GA application, registered under reference WU52143, as applicable.

5.3.9 Waste Management

Waste generated during the construction, operational and decommissioning phases will be managed in accordance with the Mine's approved waste management procedures, the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), and applicable waste classification, storage, transportation and disposal requirements.

Waste management will prioritise waste avoidance, reduction, reuse and recycling, with disposal undertaken only where recovery or recycling is not reasonably practicable. Hazardous and non-hazardous waste streams will be separated and managed according to their respective characteristics.

5.3.9.1 Construction Phase Waste

Construction activities will generate non-hazardous and hazardous waste streams associated with site establishment, civil works, installation of solar PV infrastructure and workforce activities. Waste generation will be temporary and will be managed through designated collection and storage areas.

Non-hazardous waste is anticipated to include:

- General domestic waste generated by construction personnel;
- Packaging materials, including wooden pallets, cardboard, plastics, polystyrene and strapping;
- Scrap metal from mounting structures, tracking systems and cable trays;

- Electrical cable off-cuts, conduits and other construction materials;
- Minor quantities of concrete residues and other inert construction waste; and
- Damaged or defective solar PV modules arising from transportation, handling or installation.

Damaged solar PV modules will be assessed to determine whether they can be returned to suppliers, reused or recycled. Broken modules will be stored securely to prevent further breakage, glass dispersion and potential environmental contamination. Recycling will be prioritised through appropriately authorised facilities.

Hazardous waste may include:

- Waste oils, fuels, lubricants and hydraulic fluids;
- Oily rags, contaminated absorbent materials and used filters; and
- Containers contaminated with oils, greases, cleaning agents or other hazardous substances.

Hazardous waste will be stored separately in designated, appropriately contained areas with impermeable surfaces and spill-control measures. Waste will be removed by appropriately registered or authorised service providers and transported to facilities authorised to receive the relevant waste streams.

5.3.9.2 Operational Phase Waste

Waste generation during operation is expected to be relatively limited and will primarily be associated with routine maintenance, equipment replacement and administrative activities.

Non-hazardous waste will include domestic waste, packaging materials, scrap metal and redundant non-hazardous components. Hazardous or potentially hazardous waste may include used oils, lubricants, contaminated absorbent materials, electrical and electronic components, and damaged or replaced solar PV modules.

Damaged, defective and end-of-life solar PV modules will be assessed and managed according to their condition and applicable waste classification requirements. Supplier take-back arrangements, reuse and recycling will be prioritised where reasonably practicable. Modules awaiting collection will be stored in secure, designated areas to prevent breakage and environmental contamination.

All operational waste will be segregated, stored, transported and managed in accordance with the Mine's waste management procedures and applicable legislative requirements.

5.3.9.3 Decommissioning Phase Waste

At the end of its anticipated operational lifespan, the proposed facility may be decommissioned, refurbished or repowered, subject to the prevailing operational requirements and applicable authorisations. Where decommissioning is undertaken, activities will include the dismantling and removal of solar PV modules, mounting structures, electrical equipment, cabling, fencing and other infrastructure no longer required.

Decommissioning waste is anticipated to include scrap metal, concrete, electrical cabling, solar PV modules, transformers, inverters, electronic components, oils and general demolition waste. These materials will be assessed for their potential reuse, refurbishment, recycling or disposal.

Functional solar PV modules may be reused, resold or incorporated into a repowering programme, while end-of-life modules will be prioritised for recycling to recover glass, aluminium and other reusable materials. Electrical equipment will similarly be assessed for refurbishment or material recovery.

Hazardous materials will be separated from general waste and managed in accordance with applicable waste legislation. Waste that cannot be reused or recycled will be transported by appropriately authorised service providers to suitable authorised waste management facilities. Disturbed areas will be rehabilitated in accordance with the applicable decommissioning and rehabilitation requirements.

6 NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES

The need and desirability of the proposed Project have been considered in accordance with the principles of the NEMA, the EIA Regulations, 2014, and the Department of Environmental Affairs' Guideline on Need and Desirability (DEA, 2017). The guideline provides a framework for considering whether a development is needed at the proposed time and whether its location and implementation are appropriate in relation to environmental, social and economic considerations.

The assessment considers the proposed Project's contribution to electricity security and renewable energy generation, its relationship with the existing BS Mine, its alignment with relevant national, provincial and municipal planning frameworks, anticipated socio-economic benefits, environmental considerations and the consequences of the no-go alternative.

6.1 Need for the Proposed Development

The need for the proposed Project arises primarily from the electricity requirements of the BS Mine and the operational risks associated with reliance on grid-supplied electricity. Mining and mineral processing activities require a reliable electricity supply to support production, ventilation, pumping, processing and other essential services. Electricity supply interruptions, network constraints and increasing electricity costs can affect operational continuity and the financial sustainability of electricity-intensive mining operations.

The proposed Project will comprise a solar PV facility with an installed generation capacity of up to approximately 20 MWac. The electricity generated will primarily supplement the energy requirements of the BS Mine. The proposed Project forms part of Northam Platinum Holdings Limited's broader approach to energy resilience and sustainability, with the intention of diversifying electricity supply, reducing dependence on grid-supplied electricity during solar generation periods and improving the management of electricity costs.

At a national level, the need for additional electricity generation capacity and a diversified

electricity supply is recognised in South Africa's electricity planning framework. IRP provides for the development of additional generation capacity, including renewable energy technologies, to support electricity security and meet future demand. The proposed Project is consistent with these objectives by providing solar PV generation capacity for an existing industrial electricity user (DEE, 2025).

Although the proposed Project will not independently address national electricity supply constraints, it will contribute up to approximately 20 MWac of renewable generation capacity. By meeting a portion of the Mine's electricity requirements through on site generation, the proposed Project may reduce grid electricity consumption during periods of solar generation and support a more diversified electricity supply arrangement. The proposed Project is therefore considered necessary to support the Mine's energy requirements while contributing to broader renewable energy and sustainability objectives.

6.2 Desirability of the Proposed Development

The desirability of the proposed Project relates to the suitability of the selected location, compatibility with existing land uses and the extent to which the anticipated benefits can be achieved while avoiding or appropriately managing potential environmental and social impacts. In accordance with the Guideline on Need and Desirability, the assessment considers the characteristics of the receiving environment, existing development patterns, available infrastructure and the potential implications of the proposed activities (DEA, 2017).

The proposed Project is located within the existing BS Mine, in an area influenced by mining activities, access roads, electrical infrastructure and other mine-related development. The location provides an opportunity to integrate the solar PV facility with existing infrastructure and electricity supply arrangements. Existing roads and disturbed corridors will be utilised where practicable, thereby reducing the need for additional infrastructure and associated land disturbance.

Although the proposed Project is situated within an operational mining environment, the development area is not entirely transformed and includes environmental features requiring consideration. Specialist investigations have identified wetlands, drainage features, hydropedological processes, terrestrial biodiversity sensitivities, avifaunal considerations and areas of remnant natural vegetation. The agricultural assessment identified predominantly Medium agricultural sensitivity, with limited areas of Low sensitivity (The Biodiversity Company, 2026a).

The specialist assessments have informed the identification of environmental constraints and the development of appropriate avoidance, management and mitigation measures. Particular consideration has been given to protecting wetlands and associated hydrological processes, managing stormwater and soil-water movement, retaining sensitive vegetation where practicable and minimising construction-related disturbance. The proposed Project's desirability therefore depends on the final development layout responding appropriately to these sensitivities and the effective implementation of the EMPr.

6.3 Strategic and Planning Context

The proposed Project supports the broad objectives of national energy, development and climate change policy, particularly those relating to electricity security, diversification of electricity generation and the transition towards a less carbon-intensive economy.

The National Development Plan 2030 identifies reliable and affordable electricity as an important requirement for economic development, employment and improved living standards. It also recognises the need to reduce the carbon intensity of the economy while maintaining energy security and supporting economic growth. The proposed Project supports these objectives through renewable electricity generation intended to supplement the energy requirements of an existing mining operation (NPC, 2012).

South Africa's IRP provides the framework for planning the country's electricity generation mix. The IRP 2025 provides for additional generation capacity, including solar PV, to support electricity security and diversification of South Africa's generation mix. The proposed Project is consistent with this policy direction through the development of renewable electricity generation capacity serving an existing industrial electricity user.

The Climate Change Act, 2024 (Act No. 22 of 2024), establishes a legislative framework for South Africa's response to climate change and the transition towards a low-carbon and climate-resilient economy. The proposed Project supports the broader climate change mitigation objectives of the Act by introducing renewable electricity generation that may reduce the Mine's reliance on electricity generated from fossil fuels.

At the provincial level, the Mpumalanga Provincial Spatial Development Framework provides direction for spatial development, infrastructure investment and the sustainable use of land and natural resources. The proposed Project supports the broader objective of accommodating economic infrastructure while considering environmental constraints and compatibility with existing land uses (Mpumalanga COGTA, 2019).

At the municipal level, the proposed Project is located within the Thaba Chweu Local Municipality and Ehlanzeni District Municipality. The applicable Integrated Development Plans and Spatial Development Frameworks provide the local planning context within which the proposed development must be considered. The proposed Project represents private electricity generation infrastructure intended to support an existing mining operation, with potential benefits for operational continuity and local economic activity.

6.4 Socio-economic Need and Benefits

The proposed Project is expected to create temporary employment and procurement opportunities during construction, with a smaller number of longer-term opportunities associated with operation and maintenance. Based on the current Project information, construction is anticipated to extend over approximately 15 months, with an estimated peak workforce of approximately 300 personnel. During operation, approximately 20 personnel are anticipated to be required for maintenance,

security and other operational functions. These figures represent planning estimates and may be refined during detailed design and contractor appointment.

Construction activities are expected to provide opportunities associated with civil works, site preparation, installation of solar PV infrastructure, electrical works, security, transport and general support services. Opportunities may also arise for local and regional businesses supplying construction materials, equipment, accommodation, catering, transport and other services. The extent of local participation will depend on the availability of suitably qualified personnel, Booysendal's recruitment and procurement requirements, and the capacity of local businesses to supply the required goods and services.

The proposed Project may also provide indirect socio-economic benefits through improved electricity resilience at the BS Mine. A more secure and predictable electricity supply may support operational continuity and assist in maintaining the Mine's contribution to employment, procurement and economic activity within the region. These potential benefits are consistent with the broader objectives of supporting sustainable economic development and infrastructure investment identified in the National Development Plan 2030 (NPC, 2012).

Construction activities may result in temporary increases in traffic, noise, dust and activity along existing access routes. These matters will be managed through the implementation of the EMPr, appropriate contractor controls and continued stakeholder engagement. Local employment and procurement opportunities will be encouraged where reasonably practicable, subject to Booysendal's recruitment and procurement requirements.

6.5 Environmental Sustainability Considerations

The proposed Project will generate electricity from a renewable solar resource without requiring the combustion of fossil fuels during normal electricity generation. By supplementing the Mine's electricity requirements with solar-generated electricity, the proposed Project is expected to reduce the indirect greenhouse gas emissions associated with grid electricity consumption. The extent of these reductions will depend on the electricity generated, the Mine's consumption profile and the emissions intensity of the electricity displaced. This contribution is consistent with the national objectives of diversifying electricity generation and supporting a transition towards a lower-carbon electricity system (DEE, 2025).

The development of renewable energy infrastructure must nevertheless take account of the environmental characteristics of the receiving environment. Construction and operation may result in localised disturbance to vegetation, soils and terrestrial habitats, as well as changes to stormwater runoff and drainage patterns. The protection of wetlands and associated hydrological processes, avifaunal interactions with electrical infrastructure, visual changes to the surrounding landscape and temporary construction-related effects such as dust, noise, traffic and waste generation are also relevant considerations.

The specialist assessments have identified measures to avoid or minimise these potential impacts.

These include appropriate development setbacks from sensitive environmental features, management of stormwater and soil-water movement, minimisation of vegetation clearance, protection of avifauna, pollution prevention and rehabilitation of temporarily disturbed areas. The wetland assessment identified a post-mitigation scientific buffer of 20 metres and assessed the residual aquatic risk as Low, subject to implementation of the recommended mitigation measures.

Environmental sustainability will be supported through the application of the mitigation hierarchy, with priority given to avoiding sensitive areas, minimising unavoidable disturbance and rehabilitating affected areas where practicable. The implementation of the specialist recommendations and EMPr will be important in ensuring that the proposed Project is developed and operated in an environmentally responsible manner, consistent with the environmental management principles established under NEMA.

At the end of its operational life, the facility may be decommissioned, refurbished or repowered, subject to applicable approvals. Infrastructure that is no longer required will be removed, reused or recycled where practicable, and disturbed areas rehabilitated in accordance with applicable environmental management and closure requirements.

6.6 Consequences of Not Proceeding with the Development

Under the no-go alternative, the proposed Project would not be constructed and the affected properties would remain under their existing land uses. The additional environmental disturbance associated with construction and operation of the solar PV facility would therefore be avoided, including potential vegetation clearance, soil disturbance, construction-related dust and noise, visual changes and potential impacts on sensitive environmental features.

The no-go alternative would, however, would mean that the proposed renewable electricity generation capacity of up to approximately 20 MWac would not be developed. The BS Mine would remain more dependent on grid-supplied electricity, and the anticipated benefits associated with improved energy resilience, diversification of electricity supply and reduced indirect greenhouse gas emissions would not be realised through this Project. The associated construction employment and procurement opportunities would also not arise.

The no-go alternative would avoid the additional environmental impacts associated with the proposed Project but would not address the Mine's identified need for supplementary renewable electricity generation. Taking account of the Project's energy requirements, its location within an existing mining environment and the findings of the specialist assessments, the proposed Project is considered preferable to the no-go alternative, provided that the identified environmental sensitivities are appropriately addressed and the recommended mitigation and management measures are implemented (DEA, 2017).

7 MOTIVATION FOR THE OVERALL PREFERRED SITE, ACTIVITIES AND TECHNOLOGY ALTERNATIVE

The consideration of reasonable and feasible alternatives is an integral component of the

environmental assessment process. Alternatives were considered to identify a development option that meets the purpose and need of the proposed Project while remaining technically feasible, compatible with the existing BS Mine and responsive to the environmental sensitivities of the proposed Project area.

The alternatives assessment considers the site selection process undertaken during the early planning stages of the proposed Project, the suitability of solar PV technology relative to other solar generation technologies and the consequences of not proceeding with the development. The assessment was informed by land rights considerations, terrain, available development area, proximity to existing mine and electrical infrastructure, distance from the proposed connection point, the Screening Tool and the findings of the specialist assessments.

7.1 Site Alternatives

Four potential development areas were considered during the preliminary site selection process for the proposed solar PV facility. The candidate sites were assessed against land rights, technical and environmental criteria, including terrain, available development area, proximity to the proposed electricity connection point, interaction with existing mine infrastructure, proximity to watercourses and the environmental sensitivities identified by the Screening Tool (The Energy Group, 2025).

The candidate sites considered during the site selection process are shown in **Figure 7-1**, while the considerations informing the assessment are summarised in **Table 7-1**.



Figure 7-1: Candidate Site Alternatives Considered for the proposed Photovoltaic Facility (The Energy Group, 2025)

Table 7-1: Comparative Assessment of the Site Alternatives (The Energy Group, 2025)

Alternative	Technical considerations	Environmental considerations	Assessment outcome
Site 1	The site is located farther from the proposed connection point and is constrained by its proximity to watercourse features.	The Screening Tool identified Very High aquatic sensitivity associated with Ecological Support Area and Freshwater Ecosystem Priority Area considerations, together with Very High terrestrial biodiversity sensitivity and High animal species sensitivity.	Site 1 was not carried forward because of its proximity to watercourse features and its less favourable distance from the proposed connection point.
Site 2	The site is constrained by existing infrastructure, is located farther from the proposed connection point and does not provide sufficient unconstrained development area.	The Screening Tool identified High agricultural and animal species sensitivity, Very High aquatic and terrestrial biodiversity sensitivity and Very High archaeological and cultural heritage sensitivity associated with graves.	Site 2 was not carried forward because of the existing infrastructure, insufficient development area, environmental constraints and less favourable connection distance.
Site 3	The site is constrained by existing infrastructure, is located farther from the proposed connection point and does not provide sufficient unconstrained development area.	The Screening Tool identified High agricultural and animal species sensitivity, Very High aquatic and terrestrial biodiversity sensitivity and Very High archaeological and cultural heritage sensitivity associated with graves.	Site 3 was not carried forward because of the existing infrastructure, insufficient development area, environmental constraints and less favourable connection distance.
Site 4: Preferred Site	The site has favourable terrain, provides sufficient development area and is located close to the proposed connection point.	The Screening Tool identified High agricultural and animal species sensitivity and Very High aquatic and terrestrial biodiversity sensitivity. These sensitivities were considered capable of further investigation and management through specialist assessment, layout refinement and mitigation.	Site 4 was selected as the preferred site because it provides the most favourable balance between technical feasibility, available land, proximity to the connection point and environmental constraints.

The site selection process identified Site 4 as the most suitable development area because it provides favourable terrain, sufficient land to accommodate the proposed facility and proximity to the intended electricity connection point. In comparison, Site 1 is constrained by its proximity to watercourse features, while Sites 2 and 3 are constrained by existing infrastructure, insufficient development area, greater connection distances and heritage-related sensitivities.

Selection of Site 4 did not imply that the site was environmentally unconstrained. The preferred site was therefore subjected to detailed specialist investigations, and the proposed layout was refined based on the outcome of the specialist assessments (refer to Section 11).

7.2 Technology Alternatives

The renewable energy technology alternatives considered for the proposed Project were solar PV technology and concentrated solar power technology. The selected technology must be capable of providing renewable electricity primarily for use by the BS Mine, while remaining compatible with the available land, environmental conditions, water availability and existing mine infrastructure.

7.2.1 Solar Photovoltaic versus Concentrated Solar Power

Considering the available development area, favourable solar resource, suitable terrain and

proximity to the Mine's electricity infrastructure, solar PV technology is considered the most appropriate technology for the proposed Project.

Solar PV systems convert solar radiation directly into electricity through PV modules. The technology is modular and allows individual components to be positioned and micro-sited in response to terrain, existing infrastructure and environmental sensitivities.

Concentrated solar power uses mirrors or heliostats to concentrate solar radiation and produce heat, which is subsequently used to generate electricity. Depending on the technology selected, a concentrated solar power facility may require extensive mirror fields, heat-transfer systems, steam-generation infrastructure, cooling systems and thermal-energy storage infrastructure.

Solar PV technology is considered more suitable for the proposed Project because it:

- Has substantially lower operational water requirements;
- Can be accommodated within a modular and comparatively flexible layout;
- Allows individual infrastructure components to be micro-sited around sensitive environmental features;
- Has shorter and less complex construction and commissioning requirements;
- Requires fewer thermal and process-related systems;
- Has a comparatively lower infrastructure profile;
- Is compatible with the proposed embedded-generation arrangement;
- Can make use of driven pile foundations for much of the panel support infrastructure; and
- Can be integrated with the existing Mine access, security and electrical infrastructure.

The comparatively low water demand of solar PV technology is particularly relevant because wetlands, drainage features and associated hydrological processes occur within and near the proposed Project area and require protection.

The Project will use bifacial PV panels mounted on single-axis tracking systems. Bifacial modules are capable of generating electricity from solar radiation received on both sides of the panel, while the tracking system allows the panels to follow the movement of the sun during the day. This combination supports increased electricity generation within the available development footprint.

Based on the technical, environmental and operational considerations described above, solar PV technology is considered the preferred and most feasible technology alternative for the proposed Project. Concentrated solar power was not carried forward for detailed assessment because it would introduce comparatively greater water, infrastructure, construction and operational requirements and would be less compatible with the available site and the proposed electricity supply arrangement.

7.3 No-go Alternative

The no-go alternative represents the option of not constructing or operating the proposed Project. Under this alternative, the affected properties would remain subject to their existing mining, mine-support and undeveloped land uses.

The no-go alternative would avoid the proposed Project-specific environmental impacts associated with construction, operation and decommissioning. These avoided impacts would include vegetation clearance, soil disturbance, construction-related dust, noise and traffic, disturbance of terrestrial and aquatic habitat, potential impacts on SCC, visual change, waste generation and potential risks to wetlands, drainage features and associated hydrological processes.

The no-go alternative would not, however, remove the existing environmental impacts associated with the ongoing mining activities and established infrastructure within the broader BS Mine.

The no-go alternative would also result in the loss of the anticipated benefits associated with the proposed Project, including:

- The development of approximately 20 MWac of renewable electricity generation capacity;
- Improved resilience and predictability of the Mine's electricity supply;
- Reduced reliance on grid-supplied electricity during solar generation periods;
- Reduced exposure to electricity supply interruptions and escalating electricity costs;
- The potential reduction in indirect greenhouse gas emissions associated with the Mine's electricity consumption;
- Temporary construction employment and procurement opportunities;
- Operational and maintenance employment; and
- The opportunity to integrate renewable energy infrastructure with an existing mining operation and its established infrastructure.

The no-go alternative would therefore avoid the incremental environmental impacts associated with the proposed Project but would not meet the identified need for on site renewable electricity generation or support the Mine's energy resilience and sustainability objectives.

8 POLICY AND LEGISLATIVE CONTEXT

The South African environmental regulatory framework was promulgated with the aim of environmental protection. The regulatory framework provides requirements and guidelines for environmental and social management.

Table 8-1 provides a list of applicable legislative requirements, guidelines as well as a description of how the proposed Project complies with and responds to the policy and legislation context.

Table 8-1: Applicable Legislation, Policies and Guidelines Applicable to the proposed Project

Applicable Legislation and Guidelines used to compile the Report	Description	How Does This Development Comply with and Respond to The Policy and Legislative Context
Legislation		
Chapter 2, Section 24 and Section 32 of the Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996).	Chapter 2 of the Constitution is the cornerstone of democracy in South Africa. The Chapter enshrines the rights of all people living in South Africa and affirms the democratic values of human dignity, equality and freedom. Section 24 of the Constitution states that everyone has the right to an environment that is not harmful to their health or wellbeing; and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that – • Pollution and ecological degradation; • Promote conservation; and • Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development. Section 24 guarantees the protection of the environment through reasonable legislative (and other measures), and such legislation is continuously in the process of being promulgated. Section 32 provides for access to information, held by any person or organ of state, where such information is required to exercise or protect the rights of any other person. The Promotion of Access to Information Act (Act No. 2 of 2000) gives effect to the provisions of this right.	A Basic Assessment (BA)process will be undertaken to identify and assess potential impacts associated with the proposed Project.
National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA)[2]. • EIA Regulations, 2014 (Government Notice Regulation (GN R) 982 of 2014, as amended in June 2021)[3]. • EIA Regulations Listing Notice 1 of 2014 (GN R 983 of 2014, as amended)[4]. • EIA Regulations Listing Notice 2 of 2014 (GN R 984 of 2014, as amended)[5]. • EIA Regulations Listing Notice 3 of 2014 (GN R 985 of 2014, as amended)[6]. • Financial Provisioning Regulations, 2015 (GN R 1147 of 2015, as amended)[7].	The NEMA can be regarded as the most important piece of general environmental legislation. The overarching principle of the Act is sustainable development. It defines sustainability as meaning the integration of social, economic and environmental factors into planning, implementation and decision-making so as to ensure the development serves present and future generations. The Act provides a framework for environmental law reform and covers three areas, namely: • Land, planning and development; • The use and conservation of natural and cultural resources; and • Pollution control and waste management. Section 24 of the NEMA sets out the provisions which are to give effect to the general objectives of Integrated Environmental Management (IEM) and laid down in Chapter 5 of the NEMA. In terms of Section 24(1), the potential impact on the environment of listed activities must be considered, investigated, assessed and reported on to the Competent Authority (CA) charged by the NEMA with granting of the relevant Environmental Authorisation (EA). In terms of Section 24F(1) of the NEMA no person may commence an activity listed or specified in terms of Section 24(2)(a) or (b) unless the CA has granted an EA for the activity. The Minister published the EIA Regulations comprising the EIA Regulations GN R 982, and three Listing Notices namely GN R 983 (Listing Notice 1), GN R984 (Listing Notice 2) and GN R 985 (Listing Notice 3) in terms of sections 24(2) and 24D of the NEMA. The Regulations make provision for the regulation of the procedure and criteria as contemplated in Chapter 5 of the Act relating to the preparation, evaluation, submission, processing and consideration of, and decision on, applications for EA for the commencement of activities, subjected to EIA, in order to avoid or mitigate detrimental impacts on the environment, and to optimise positive environmental impacts, and for matters pertaining thereto.	In terms of Section 24(1) of NEMA, the potential consequences or impacts of proposed activities—particularly those identified as listed activities—must be considered, investigated, assessed and reported to the CA before they may commence (unless expressly excluded). Accordingly, an application for EA for the listed activities contemplated in Listing Notices 1 and 3 (GN R 983 and GN R 985, as amended) will be submitted to the Department of Mineral and Petroleum Resources (DMPR) as the CA. The potentially triggered listed activities are set out in **Table 4-2** of this Report. During the BA process the project's environmental and socio-economic impacts, risks, reasonable alternatives and cumulative effects will be assessed. Practicable mitigation and management measures, together with a monitoring and reporting programme, will be developed and captured in the Environmental Management Programme (EMPr). The process will include public participation and specialist studies, as required by the EIA Regulations, 2014.
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (NEMWA)[8]. • List of waste management activities that have, or are likely to have, a detrimental effect on the environment (GN 921 of 2013, as	The NEMWA commenced on 1 July 2009 and as a result of its commencement the relevant provisions in the Environment Conservation Act, 1989 (Act No. 73 of 1989) (ECA) in respect of waste management, were repealed. The Act sets out to reform the law regulating waste management and deals with waste management and control more comprehensively than was dealt with in the ECA. It also introduces new and distinct concepts never canvassed within the realm of waste management in South Africa, such as the concept of contaminated land and extended producer responsibility. It also provides for more elaborate definitions to assist in the interpretation of the Act.	Activities associated with the proposed Project do not require an WML.

[2] The National Environmental Laws Amendment Act, 2022 (Act No 2 of 2022) was signed into law on 24 June 2022. Except for sections 11, 35(a), 57, 60, 61(c), 61(j), 61(k), 62, 63, 64, 65, 66, 72, 76, 77, 86, 87 and 88 pertaining mostly to changes to the NEMWA, the NEMLAA came into effect on 30 June 2023 as per Proclamation Notice 125 of 2023, published in GG 48869.
[3] GN R 982 of 4 December 2014 as amended by GN R 326 of 7 April 2017, GN 706 of 13 July 2018, GN 599 of 29 May 2020 and GN 517 of 11 June 2021.
[4] GN R 983 in GG 38282 of 4 December 2014 as amended by GN R 327 in GG 40772 of 7 April 2017, GN 706 in GG 41766 of 13 July 2018 and GN 517 in GG 44701 of 11 June 2021.
[5] GN R 984 in GG 38282 of 4 December 2014, as amended by GN R 325 in 40772 of 7 April 2017 and GN 517 in GG 44701 of 11 June 2021.
[6] GN R 985 in GG 38282 of 4 December 2014, as amended by GN R 324 in 40772 of 7 April 2017, GN 706 in GG 41766 of 13 July 2018 and GN 517 in GG 44701 of 11 June 2021.
[7] The *Regulations Pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production Operations* published in GN R 1147 in GG 39425 of 20 November 2015 as amended by GN 1314 in GG 40371 of 26 October 2016; GN R 452 in GG 41584 of 20 April 2018; GN 991 in GG 41921 of 21 September 2018; GN 24 in GG 42956 of 17 January 2020; GN 495 in GG 44698 of 11 June 2021.
[8] As amended by the National Environmental Management: Waste Amendment Act 26 of 2014. As stated above, the National Environmental Laws Amendment Act, 2022 (Act No 2 of 2022) was signed into law on 24 June 2022 and will come into operation on a date to be fixed and proclaimed by the President. Once the amendment act comes into operation residue stockpiles and residue deposits will be removed from NEMWA and regulated in terms of the provisions of NEMA. Residue stockpiles and residue deposits will therefore no longer be regarded as waste for which a waste management licence is required. Residue stockpiles and residue deposits will in future be authorized in terms of the NEMA under the EIA Listing Notices. In terms of the transitional provisions any approval granted, or waste management licence issued in relation to residue deposits and residue stockpiles remain valid until it lapse or replaced under the provisions of the NEMA.

Applicable Legislation and Guidelines used to compile the Report	Description	How Does This Development Comply with and Respond to The Policy and Legislative Context
amended)[9]. • National Waste Information Regulations, 2012 (GN R 625 of 2012)[10]. • Regulations Regarding the Planning and Management of Residue Stockpiles and Residue Deposits, 2015 (GN R 632 of 2015, as amended)[11]. • Waste Classification and Management Regulations, 2013 (GN R 634 of 2012)[12]. • National Norms and Standards for the Assessment of Waste for Landfill Disposal (GN R 635 of 2012)[13]. • National Norms and Standards for the Disposal of Waste to Landfill (GN R 636 of 2012)[14]. • National Norms and Standards for the Storage of Waste (GN 926 of 2013)[15]. • National Norms and Standards for the Remediation of Contaminated Land and Soil Quality – GN 331 in Government Gazette No. 37603 dated 2 May 2014.	In terms of Section 19(1) of the NEMWA, the Minister, published in GN R 921, a list of waste management activities that have, or are likely to have a detrimental effect on the environment. Section 20 of the NEMWA pertains to the consequences of listed waste management activities and states that no person may commence, undertake or conduct a waste management activity, except in accordance with the requirements or standards for that activity as determined by the Minister or in accordance with a Waste Management Licence (WML) issued in respect of that activity, if a licence is required. In accordance with Section 19(3), the Schedule to GN R 921 provides that a WML is required for those activities listed in Category A and B thereof and compliance with the Norms and Standards is required for those activities listed in Category C thereof prior to the commencement, undertaking or conducting of same. In addition, GN R 921 differentiates between Category A, B, and Category C waste management activities. Category A waste management activities are those which require the conducting of a basic assessment process as stipulated in the EIA Regulations, (GN R 982) promulgated in terms of the NEMA as part of the WML application and Category B waste management activities are those that require the undertaking of Scoping and Environmental Impact Reporting process stipulated in the GN R 982 as part of the WML application. Category C waste management activities do not require a WML, however a person who wishes to commence, undertake or conduct a waste management activity listed under this category, must comply with, amongst others, the relevant National Norms and Standards for the Storage of Waste (GN R 926 of 29 November 2013) published in terms of the NEMWA.	
National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) (NEMAQA). • Listed Activities and Associated Minimum Emission Standards Identified in terms of Section 21 of the NEMAQA (GN R 893 of 2013, as amended)[16]. • National Dust Control Regulations, 2026 (GN R.7335 of 2026)[17]. • National Atmospheric Emission Reporting Regulations, 2015 (GN R 283 of 2015)[18]. • Atmospheric Dispersion Modelling Regulations, 2014 (GN R 533 of 2014)[19]. • National Greenhouse Gas Emission Reporting Regulations (GN R 275 of 2017 as amended)[20].	The Act aims to regulate and protect the environment, by "providing reasonable measures for the prevention of air pollution and ecological degradation, and for securing ecologically sustainable development while promoting justifiable economic and social development; to provide for national Norms and Standards regulating air quality monitoring, management and control by all spheres of government; for specific air quality measures; and for matters incidental thereto". The Minister published Listed Activities and Associated Minimum Emission Standards Identified in terms of Section 21 of the NEMAQA in 2013. Part 3 of the Notice makes provision for a list of activities in the following categories which the Applicant must review to determine whether an application for an Air Emissions Licence (AEL) is required: • Category 1: Combustion Installations; • Category 2: Petroleum Industry, the production of gaseous and liquid fuels as well as petrochemicals from crude oil, coal, gas or biomass; • Category 3: Carbonisation and Coal Gasification; • Category 4: Metallurgical Industry; • Category 6: Organic Chemicals Industry; • Category 7: Inorganic Chemicals Industry; • Category 8: Thermal Treatment of Hazardous and General Waste; • Category 9: Pulp and Paper Manufacturing Activities, including By-Products Recovery; and • Category 10: Animal Matter Processing.	Activities associated with the proposed Project do not require an AEL. The project will need to comply with the National Dust Control Regulations, 2013.
National Environmental Management: Biodiversity Act, 2004 (Act No. 39 of 2004)	The Act aims to provide for the management and conservation of South Africa's biodiversity within the framework of the NEMA. The Act allows for the protection of species and ecosystems that warrant national protection; the sustainable use of	As part of the project, Terrestrial Biodiversity, Plant and Animal Species Assessment will be undertaken during the BA phase to establish baseline

[9] GN 921 in GG 37083 of 29 November 2013 as amended by GN 332 in GG 37604 of 2 May 2014; GN R 633 in GG 39020 of 24 July 2015; and GN 1094 in GG 41175 of 11 October 2017.
[10] GN R 625 in GG 35583 of 13 August 2012.
[11] GN R 632 in GG 39020 of 24 July 2015 as amended by the Planning and Management of Residue Stockpiles and Residue Deposits Amendment Regulations, 2018 published under GN 990 in GG 41920 of 21 September 2018. Once the relevant sections in the National Environmental Laws Amendment Act, 2022 (Act No 2 of 2022) comes into effect, residue stockpiles and residue deposits will be excluded from NEMWA and will be regulated in terms of the provisions of NEMA. The Residue Regulations will remain operational and will be deemed to have been made under NEMA.
[12] GN R 634 in GG 36784 of 23 August 2012.
[13] GN R635 in GG 36784 of 23 August 2012.
[14] GN R636 in GG 36784 of 23 August 2012.
[15] GN 926 in GG 37088 of 29 November 2013.
[16] GN R 893 in GG 37054 of 22 November 2013, as amended by GN 551 in GG 38863 of 12 June 2015; GN 1207 in GG 42013 of 31 October 2018; GG 687 in GG 42472 of 22 May 2019; GN 421 in GG 43174 of 27 March 2020.
[17] GN R 7335 in GG 54440 of 31 March 2026.
[18] GN R 283 in GG 38633 of 2 April 2015.
[19] GN R 533 in GG 37804 of 11 July 2014.
[20] GN R 275 in GG 40762 of 3 April 2017 as amended by GN R 994 in GG 43712 of 11 September 2020.

Applicable Legislation and Guidelines used to compile the Report	Description	How Does This Development Comply with and Respond to The Policy and Legislative Context
(NEMBA). • Threatened or Protected Species Regulations, 2007 (GN R 152 of 2007)[21]. • Alien and Invasive Species Regulations (GN R 1020 of 2020)[22]. • Alien and Invasive Species Lists, 2020 (GN 1003 of 2020)[23].	indigenous biological resources; the fair and equitable sharing of benefits arising from bioprospecting involving indigenous biological resources; the establishment and functions of a South African National Biodiversity Institute; and for matters connected therewith. In terms of Section 57 of the Act, no person may carry out any restricted activity involving any species which has been identified by the Minister as "critically endangered species", "endangered species", "vulnerable species" or "protected species" without a permit. The Act defines "restricted activity" in relation to such identified species so as to include, but not limited to, "hunting, catching, capturing, killing, gathering, collecting, plucking, picking parts of, cutting, chopping off, uprooting, damaging, destroying, having in possession, exercising physical control over, moving or translocating". The Minister has made Regulations in terms of Section 97 of the NEMBA with regards to Threatened and Protected Species which came into effect on 1 June 2007. Furthermore, the Minister published lists of critically endangered, endangered, vulnerable, and protected species in terms of Section 56(1) of the NEMBA.	conditions, map sensitive habitats, identify species of conservation concern, and assess ecosystem processes including riparian and wetland function. The results will inform avoidance-led design, delineate no-go areas and buffers, and define mitigation to prevent or minimise impacts. The assessments will be conducted in accordance with the NEMBA and its Regulations, as well as relevant provincial guidelines. The outputs will include impact significance ratings, recommended mitigation and monitoring measures, and rehabilitation and adaptive management actions for incorporation into the EMPr.
National Forests Act (Act No. 84 of 1998). • Latest list of protected tree species in South Africa (GN 4496 (Government Notice 50291 of 13 March 2024)). • Specifies exemptions under Sections 7(1) and 15(1) of the Act (GN 25 of 2014 (Government Gazette No. 37246 of 24 January 2014)).	The Act provides for special measures to protect certain forests and tree species while promoting the sustainable use of forests for environmental, economic, educational, recreational, cultural, health, and spiritual purposes. In terms of Section 15(1), no protected tree species may be cut, damaged, destroyed, disturbed, or possessed (including products thereof), unless under licence granted by the relevant authority.	Permits will be obtained for any protected tree species.
National Water Act, 1998 (Act No. 36 of 1998) (NWA). Regulations on the use of water for mining and related activities aimed at the protection of water resources (GN 704 of 1999)[24]. • Water Use Licence Application and Appeals Regulations, 2017 (GN R 267 of 2017)[25]. • Regulations regarding the safety of dams in terms of Section 123(1) of the NWA (GN R 139 of 2012)[26]. • General Authorisations: ○ General Authorisation: 21(c) and (i) water use for the purpose of rehabilitating a wetland for conservation purposes (GN 1198 of 2009)[27]. ○ General Authorisation: 21(c) and (i) water uses (GN 509 of 2016)[28]. ○ Revision of General Authorisation for the Taking and Storing of Water (GN 538 of 2016)[29]. ○ Revision of General Authorisation in terms of Section 39 of the National Water Act 36 of 1998 (GN 665 of	The national government, acting through the Minister of Water and Sanitation (previously the Minister of Water Affairs), is the public trustee of South Africa's water resources, and must ensure that water is protected, used, developed, conserved, managed, and controlled in a sustainable and equitable manner for the benefit of all persons (Section 3(1)). Section 19 of the NWA places an obligation on landowners, persons in control of land, occupants of land and land users of land on which: • Any activity or process is or was performed or undertaken; or • Any other situation exists, which causes, has caused or is likely to cause pollution of a water resource, to take all reasonable measures to prevent any such pollution from occurring, continuing, or recurring. In terms of the NWA a person may only use water without a licence under certain circumstances. All other use, provided that such use qualifies as a use listed in Section 21 of the Act, require a Water Use Licence (WUL). A person may only use water without a licence if such water use is permissible under Schedule 1 (generally domestic type use) if that water use constitutes a continuation of an existing lawful water use (water uses being undertaken prior to the commencement of the NWA, generally in terms of the Water Act of 1956), or if that water use is permissible in terms of a general authorisation issued under Section 39 (general authorisations allow for the use of certain Section 21 uses provided that the criteria and thresholds described in the general authorisation is met). The Minister published Regulations Regarding the Procedural Requirements for Water Use Licence Applications and Appeals in GN R 267 of 2017. The Regulations serve to prescribe the procedure and requirements of Water Use Licence Applications (WULAs) as contemplated in Sections 41 of NWA, as well as an appeal against a decision made by a Responsible Authority in terms of Section 41(6) of the NWA. The Regulations provide the requirements for the WULA and state that consideration and decision for a WUL must be undertaken within a period of 300 days of submitting such application. A procedure for public participation must also be conducted as contemplated in Section 41(4) of the NWA, as part of the WULA process.	The proposed Project will trigger one or more water uses as defined in Section 21 of the NWA and will therefore require authorisation. A WULA will be submitted to the Department of Water and Sanitation for the Section 21 water uses identified for the project. The specific water uses applicable to the proposed activities are set out in **Table 4-3**. As part of the BA phase, Fresh Water Ecology and Hydropedological assessments will be undertaken to establish baseline conditions, assess potential direct and cumulative impacts, confirm buffers and crossing requirements. The recommended mitigation measures will be incorporated into the EMPr.

[21] GN R 152 in GG 29657 on 23 February 2007.
[22] GN R 1020 in GG 43735 of 25 September 2020.
[23] GN 1003 in GG 43726 of 18 September 2020. Notice replaced the previous Alien and Invasive Species Lists (GN 864 in GG 40166 of 29 July 2016).
[24] GN 704 in GG 20119 of 4 June 1999.
[25] GN R 267 in GG 40713 of 24 March 2017.
[26] GN R 139 in GG 35062 of 24 February 2012.
[27] GN 1198 in GG 32805 of 18 December 2009.
[28] GN 509 in GG 40229 of 26 August 2016.
[29] GN 538 in GG 40243 of 2 September 2016.

Applicable Legislation and Guidelines used to compile the Report	Description	How Does This Development Comply with and Respond to The Policy and Legislative Context
2013)[30].		
National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA).	The NHRA established the South African Heritage Resources Agency (SAHRA) as well as provincial heritage resources agencies. In terms of the NHRA, no person may destroy, damage, deface, excavate, alter, remove from its original position, subdivide, or change the planning status of any heritage site without a permit issued by the heritage resources authority responsible for the protection of such site. Section 38 of the NHRA states that any person who intends to undertake developments categorised in Section 38 of the NHRA must at the very earliest stages of initiating such development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development. By way of example, the developments referred to in Section 38 of the NHRA include: The construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300 metres in length; The construction of a bridge or similar structure exceeding 50 metres in length; • Any development or other activity which will change the character of a site – o Exceeding 5000 m^2 in extent; or o Involving three or more existing erven of subdivisions thereof; or o Involving three or more erven or divisions thereof which have been consolidated within the past five years; or o The costs of which will exceed a sum set in terms of Regulations by SAHRA or a Provincial Heritage Resources Authority (PHRA); or o The rezoning of a site exceeding 10 000 m^2 in extent; or • Any other category of development provided for in the Regulations by SAHRA or the PHRA.	In terms of Section 38(1) of the NHRA, any person proposing (i) a development that will change the character of a site exceeding 5,000 m^2 in extent, or (ii) the construction of a road, powerline or pipeline exceeding 300 m in length, must notify the responsible heritage resources authority (SAHRA and/or the relevant PHRA) at the earliest stage of project initiation. A case for the proposed Project will be registered with SAHRA.. An Archaeological Impact Assessment and a Palaeontological Impact Assessment will be undertaken. The findings, significance ratings, and recommended mitigation measures will be incorporated into the EMPr. No disturbance of heritage resources will occur without the necessary authorisations or permits.
Section 25 of the Environment Conservation Act, 1989 (Act No. 73 of 1989) (ECA). Noise Control Regulations (GN R 154 of 1992)[31].	These Regulations set out rules relative to the control of noise as provided for in Section 25 of the ECA. The Regulations, among other things: define powers of local authorities to control noise; define general prohibitions in relation with activities that produce noise; define and prohibit noise nuisance; and concern the use of noise measuring instruments.	Booysendal will have to ensure that employees, contractors and subcontractors adhere to the requirements of this Act.
Hazardous Substances Act, 1973 (Act No. 15 of 1973) (HAS).	The Act aims to provide for the control of substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitising or flammable nature or the generation of pressure thereby in certain circumstances, and for the control of certain electronic products; to provide for the division of such substances or products into groups in relation to the degree of danger; to provide for the prohibition and control of the importation, manufacture, sale, use, operation, application, modification, disposal or dumping of such substances and products; and to provide for matters connected therewith.	Booysendal will have to ensure that employees, contractors and subcontractors adhere to the requirements of this Act.
Civil Aviation Act, 2009 (Act No. 13 of 2009) (CAA).	Governs civil aviation in South Africa and establishes the South African Civil Aviation Authority (SACAA), mandated to control, promote, regulate, support, develop, enforce, and continuously improve aviation safety and security. The SACAA fulfils this mandate by aligning with the Standards and Recommended Practices of the International Civil Aviation Organisation, while adapting them to the South African context through the South African Civil Aviation Regulations (CARs) and the South African Civil Aviation Technical Standards (CATs). All proposed developments or activities that may affect civil aviation must be assessed in terms of these regulations to ensure aviation safety.	The proposed Project will be assessed for potential impacts on civil aviation in accordance with the CARs and CATs. Any submissions or approvals required by the SACAA will be obtained to ensure compliance with aviation safety standards.
National Road Traffic Act, 1996 (Act No. 93 of 1996) • National Road Traffic Regulations, 2000.	Provides for the regulation of road traffic in South Africa, including limitations on vehicle dimensions, axle loads, and vehicle masses for vehicles using public roads. Certain vehicles or loads that exceed the prescribed limitations and cannot reasonably be dismantled without disproportionate effort, cost, risk, or damage are classified as abnormal loads. Such loads may only be transported on public roads under an exemption permit issued in terms of Section 81 of the Act.	Transportation of key infrastructure components and machinery to the project site during the construction phase may require abnormal load permits. Permit applications will be submitted in terms of Section 81 of the Act to ensure compliance with road traffic regulations.
Policies and Plans		
National Development Plan, 2011 (NDP)[32].	Development in South Africa is guided by the NDP, which presents a shared long-term strategic framework within which more detailed development planning can take place to advance the long-term goals adopted in the NDP. The plan aims to ensure that all South Africans attain a decent standard of living through the elimination of poverty and the reduction of inequality. The NDP 2030 sets a target of creating approximately 11 million new jobs and achieving an annual average economic growth rate of 5.4 % by 2030.	The NDP is applicable in guiding Booysendal to ensure that all adjacent and affected communities attain a decent standard of living through the elimination of poverty and the reduction of inequality. The project is in alignment with the NDP through its potential to create employment and its plans to develop infrastructure.
Mpumalanga Biodiversity Sector Plan (MBSP), 2015.[33]	The Mpumalanga Biodiversity Sector Plan (MBSP), 2015, is a strategic biodiversity planning tool developed to guide sustainable land use, biodiversity conservation and environmental decision-making within Mpumalanga Province. The MBSP identifies Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs) necessary to maintain biodiversity, ecological processes and ecosystem services. The MBSP was formally adopted in May 2023, and updated terrestrial CBA spatial mapping became available in 2024. The plan provides a framework for integrating biodiversity considerations into spatial planning, environmental assessments and development decision-making.	The proposed Project will consider the MBSP, including the latest available spatial biodiversity datasets, to identify sensitive biodiversity features and inform appropriate avoidance, mitigation and management measures.
Mpumalanga Growth and Development Path.	The Mpumalanga Economic Growth and Development Path (MEGDP), 2011, provides a strategic framework for promoting sustainable economic growth, employment creation and socio-economic development within Mpumalanga Province. The	The proposed Project is aligned with the broader objectives of the MEGDP through its potential contribution to economic activity, employment

[30] GN 665 in GG 36820 of 6 September 2013.
[31] GN R 154 of January 1992.
[32] https://www.nationalplanningcommission.org.za/National_Development_Plan
[33] Mpumalanga Parks and Tourism Agency. 2015. Mpumalanga Biodiversity Sector Plan Handbook: Technical Report, Maps and Guidelines. Mbombela, South Africa: Mpumalanga Parks and Tourism Agency.

Applicable Legislation and Guidelines used to compile the Report	Description	How Does This Development Comply with and Respond to The Policy and Legislative Context
	framework prioritises poverty reduction, economic diversification, infrastructure development and investment in key economic sectors, including agriculture, mining, manufacturing, energy and tourism. It seeks to promote inclusive economic development while addressing unemployment, inequality and the sustainable use of provincial resources.	opportunities and infrastructure development. The extent of this alignment will be considered in the assessment of the Project's socio-economic impacts.
Thaba Chweu Local Municipality and Ehlanzeni District Municipality Integrated Development Plans (IDPs)	The Integrated Development Plans (IDPs) of the Thaba Chweu Local Municipality and Ehlanzeni District Municipality provide strategic frameworks for local and regional development, focusing on economic growth, employment creation, infrastructure development, service delivery and sustainable environmental management. The IDPs recognise the importance of key economic sectors, including mining, agriculture, forestry and tourism, in supporting economic development and employment opportunities within the region. They further emphasise investment in infrastructure, skills development, support for Small, Medium and Micro Enterprises (SMMEs), poverty reduction and the sustainable use of natural resources.	The proposed Project is broadly aligned with the economic development objectives of the municipal IDPs through its potential contribution to employment opportunities, local procurement, infrastructure development and socio-economic growth. This alignment is subject to the implementation of appropriate environmental management measures and compliance with applicable municipal planning and development requirements.
Tools, Standards and Guidelines		
Department of Forestry, Fisheries and the Environment (DFFE) Environmental Screening Tool.	The DFFE requires that their National Environmental Screening Tool be utilised prior to undertaking an application for any EA and that the report generated by the tool be submitted with the EA application. The tool is a geographically based web-enabled application which allows a proponent intending to submit an application for an EA to pre-screen their proposed site for any environmental sensitivities. Regulation 16(1)(b)(v) of the requires a screening report to accompany an application for an EA.	The BA process has been undertaken in respect of the authorisation process of the project and is in compliance with the NEMA requirements read with the EIA Regulations, 2014. An EA application together with the Screening Tool Report (**Appendix B**) was submitted to the DMPR, on 30 September 2026.
Waste management standards: SANS 10234:2019, Edition 2: Globally Harmonised System of Classification and Labelling of Chemicals (GHS)[34].	***SANS 10234:2008*** South Africa has moved a step forward in regard to mandating that Globally Harmonised System (GHS) of Classification and Labelling of Chemicals, be implemented within the country. Standard SANS 10234:2019 (edition-2) was published through the South Africa Bureau of Standards on December 17, 2019. This Standard supersedes Standards: SANS 10265 edition-1 of 1999 and SANS 10234 edition-1.01 of 2008. This Standard is aligned with the 4th revision of the UN GHS Purple book and is cross referenced in the NEM: WA and National Health Act, 2003 (Act No. 61 of 2003). The National Committee for Standards for Dangerous Goods, including hazardous chemical substances and dangerous goods, is in charge of preparing this Standard. The Committee has decided to permanently remove the Supplement (List of Classification and Labelling of Chemicals in Accordance with GHS), to the SANS 10234:2008 (edition-1), since the Committee believes that the chemicals on this list are constantly changing. This Standard is also mandated by the DFFE and Department of Health. This Standard will be considered a minimum requirement to adhere to when the draft Regulation of Hazardous Substances Agents (2018) is published, which is projected for 2020, under the authority of the Department of Labour. The Standard provides guidelines for classifying chemicals based on their physical, health, and environmental hazards, as well as standardised labelling elements such as pictograms, signal words, hazard statements, and precautionary statements.	The Guidelines will be consulted when compiling the EMPr.
Air quality: • National Ambient Air Quality Standards (NAAQS), 2009[35]. • GN 486 dated 2 July 2012: National Ambient Air Quality Standard for Particulate Matter with Aerodynamic Diameter less than 2.5 Micron Metres ($PM_{2.5}$)[36].	***NAAQS*** The NAAQS provide comprehensive guidelines and Regulations to safeguard air quality across South Africa. These standards outline permissible concentrations of various air pollutants, including particulate matter, sulphur dioxide, nitrogen dioxide, carbon monoxide, ozone, and lead, aimed at protecting public health and the environment. The NAAQS serves as a benchmark for assessing and monitoring air quality levels nationwide, guiding government agencies, industries, and other stakeholders in implementing measures to mitigate air pollution and minimise its adverse impacts. ***NAAQS – $PM_{2.5}$*** The National Ambient Air Quality Standard for Particulate Matter with Aerodynamic Diameter less than 2.5 Micron Metres ($PM_{2.5}$) establishes regulatory guidelines to control and monitor fine particulate pollution in the ambient air across South Africa. $PM_{2.5}$ refers to tiny particles suspended in the air, which can penetrate deep into the lungs and pose significant health risks, including respiratory and cardiovascular problems. The standard sets permissible concentration limits for $PM_{2.5}$ in ambient air, serving as a crucial tool for protecting public health and the environment.	The Guidelines will be consulted when compiling the EMPr.
Noise standards: • SANS 10103:2008 The measurement and rating of environmental noise with respect to annoyance and to speech communication[37].	SANS 10103:2008 outlines guidelines for the measurement and assessment of environmental noise concerning its potential to cause annoyance and disrupt speech communication. This standard provides a framework for objectively evaluating noise levels in various environments to ensure they meet acceptable thresholds for human comfort and communication.	The Guidelines will be consulted when compiling the EMPr.
IEM guidelines: • Integrated Environmental Management Information Series –	The IEM guidelines serve as a comprehensive framework for managing environmental considerations across various sectors and activities. These guidelines emphasise the integration of environmental considerations into decision-making processes at all stages of planning, implementation, and monitoring. By adopting an integrated approach, IEM seeks to balance socio-	The BA process for the project will be undertaken in accordance with the principles of IEM. A detailed impact assessment together with the recommended mitigation and management measures will be provided.

[34] Standard SANS 10234:2019 (edition-2), South African Bureau of Standards
[35] GN 1210 in GG 32816 of 24 December 2009.
[36] GN 486 in GG 35463 of 29 June 2012.
[37] South African Bureau of Standards - SANS 10103:2008 The measurement and rating of environmental noise with respect to annoyance and to speech communication, 2008.

Applicable Legislation and Guidelines used to compile the Report	Description	How Does This Development Comply with and Respond to The Policy and Legislative Context
Impact Significance. Information Series 5, 2004[38]. • Integrated Environmental Management Information Series – Cumulative Effects Assessment. Information Series 7, 2004[39]. • Integrated Environmental Management Information Series – Criteria for Determining Alternatives in EIA. Information Series 11, 2004[40]. • Review in EIA, Integrated Environmental Management, Information Series 13, 2004[41]. • Public Participation guideline in terms of NEMA EIA Regulations, 2017[42]. • Guidelines on Need and Desirability, 2017[43]. • Guideline on the Administration of Appeals, 2015[44].	economic development with environmental protection, ensuring that development activities are sustainable and minimise adverse environmental impacts. Key components of IEM include stakeholder engagement, EIA, environmental management plans, monitoring, and adaptive management strategies.	The Need and Desirability of the project will be considered and discussed following the guidelines provided by the DFFE. The Public Participation Process (PPP) will be facilitated as recommended in the Public Participation guidelines.

[38] DEAT (2002) Impact Significance, Integrated Environmental Management, Information Series 5, Department of Environmental Affairs and Tourism (DEAT), Pretoria.
[39] DEAT (2004) Cumulative Effects Assessment, Integrated Environmental Management, Information Series 7, Department of Environmental Affairs and Tourism (DEAT), Pretoria.
[40] DEAT (2004) Criteria for determining Alternatives in EIA, Integrated Environmental Management, Information Series 11, Department of Environmental Affairs and Tourism (DEAT), Pretoria.
[41] DEAT (2004) Review in Environmental Impact Assessment, Integrated Environmental Management, Information Series 13, Department of Environmental Affairs and Tourism (DEAT), Pretoria.
[42] Department of Environmental Affairs (2017), Public Participation guideline in terms of NEMA EIA Regulations, Department of Environmental Affairs, Pretoria, South Africa.
[43] DEA (2017), Guideline on Need and Desirability, Department of Environmental Affairs (DEA), Pretoria, South Africa.
[44] Department of Environmental Affairs (2015), Guidelines on the Administration of Appeals, Department of Environmental Affairs, Pretoria, South Africa.

9 BASIC ASSESSMENT PROCESS

The BA process for the proposed Project is being undertaken in accordance with the NEMA, and the EIA Regulations, 2014. The purpose of the process is to identify and assess potential environmental and socio-economic impacts, consider reasonable and feasible alternatives, and determine appropriate mitigation and management measures to inform DMPR in its consideration of the EA application.

The BA process is undertaken in accordance with Regulations 19 and 20 and Appendix 1 of the EIA Regulations, 2014. It includes environmental screening, SSV, specialist investigations, impact assessment, public participation and preparation of the BAR and EMPr.

The EA application was submitted to the DMPR on 30 September 2026. The DBAR, EMPr and supporting specialist reports will be made available for public review and comment from 10 November 2026 to 10 December 2026. Following the review period, comments received will be considered, the assessment documentation will be updated where necessary, and the Final Basic Assessment Report (FBAR), EMPr and CRR will be submitted to the DMPR.

In terms of Regulation 19(1) of the EIA Regulations, 2014, the FBAR and EMPr must generally be submitted within 90 days of receipt of the EA application, or within 140 days where significant changes necessitate an additional public participation process. The applicable submission deadline will be determined in accordance with the prescribed regulatory timeframes and provisions governing the calculation of days.

Following submission, the DMPR will review the assessment findings, specialist recommendations, stakeholder comments and proposed mitigation measures before deciding whether to grant or refuse EA. Registered I&APs will be notified of the decision and applicable appeal procedures.

The BA process is illustrated in **Figure 9-1**. Details of the public participation activities undertaken and planned for the proposed Project are provided in Section 10.

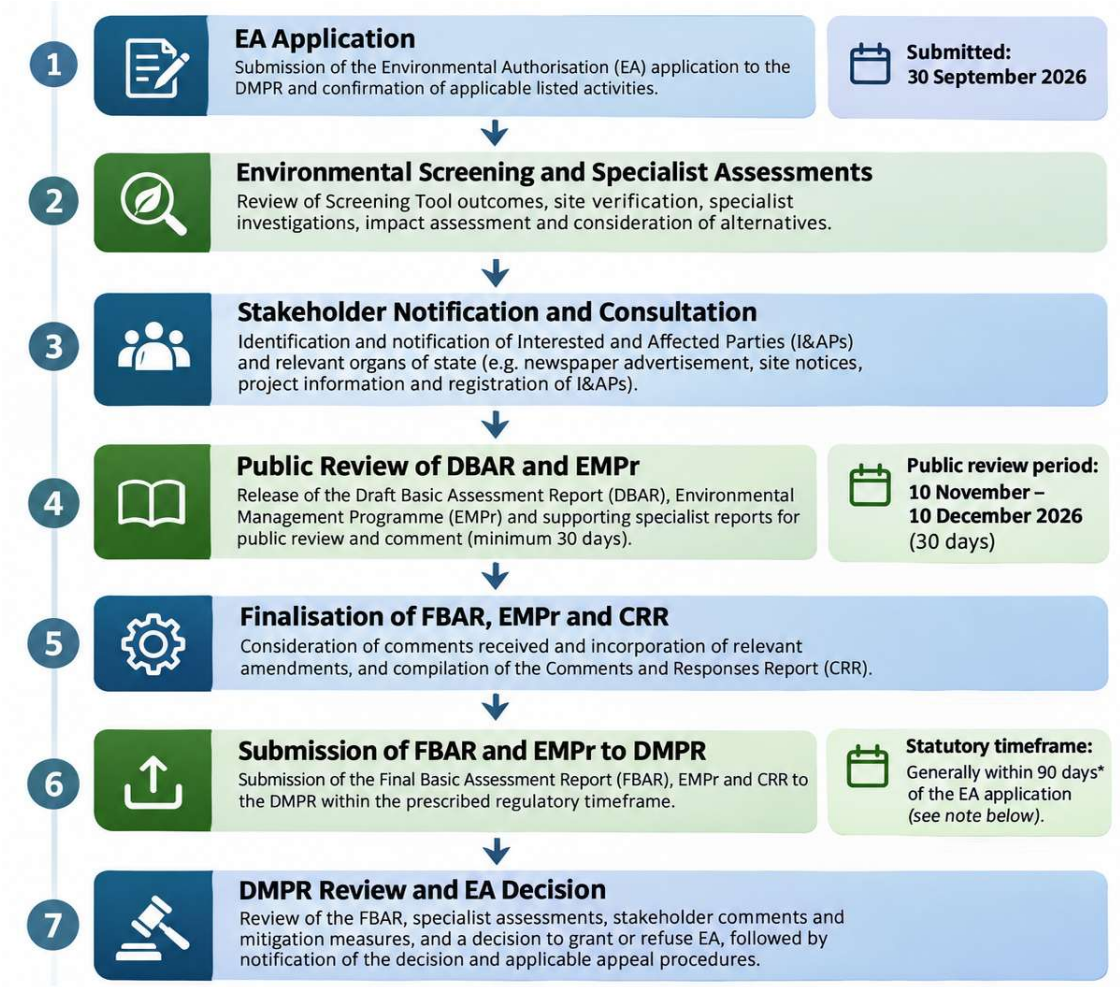


Figure 9-1: Basic Assessment Process

10 DETAILS OF THE PUBLIC PARTICIPATION PROCESS FOLLOWED

Public participation forms an integral part of the BA process and is undertaken in accordance with Chapter 6 of the EIA Regulations, 2014. The PPP provides I&APs, relevant organs of state, local communities and other stakeholders with opportunities to obtain information about the proposed Project, raise concerns and comment on the environmental assessment documentation.

The PPP includes stakeholder identification and notification, publication of a newspaper advertisement, placement of site notices, distribution of Project information, availability of the DBAR and EMPr for public review, and consideration of comments received. The outcomes of the process will be documented in the CRR and incorporated into the FBAR, where applicable.

10.1 Previous Stakeholder Engagement

Stakeholder engagement relating to the proposed renewable energy infrastructure at Booysendal Mine was previously undertaken as part of the PPP for the broader Booysendal Mine Projects during 2026. Focus group and open meetings were held between 25 February and 6 March 2026, involving

local communities, traditional authorities, community forums, landowners, municipalities and relevant government departments.

During these engagements, stakeholders were informed of the proposed renewable energy developments and their intended role in supporting the Mine's electricity requirements. Matters raised included employment, local procurement, Project safety, environmental management and cultural heritage. The previous engagement provides a foundation for the current BA process but does not replace the Project-specific consultation and public review requirements.

10.2 Public Participation Activities

The PPP commenced following submission of the EA application to the DMPR on 30 September 2026. Initial stakeholder notification activities commenced in October 2026 and will continue during November 2026. The planned activities and associated dates are summarised in **Table 10-1**.

Table 10-1: Planned Public Participation Activities

Activity	Planned Date or Period
Submission of Environmental Authorisation (EA) application to the Department of Mineral and Petroleum Resources (DMPR)	30 September 2026
Publication of newspaper advertisement	29 October 2026
Placement of site notices	5–6 November 2026
Distribution of Background Information Document (BID) and stakeholder notifications	November 2026
Public review of Draft Basic Assessment Report (DBAR), Environmental Management Programme (EMPr) and supporting specialist reports	10 November 2026 to 10 December 2026
Stakeholder and focus group meetings, where required	During the BA process
Compilation and updating of the Comments and Responses Report (CRR)	Throughout the BA process and following the public review period
Finalisation of BAR and EMPr	Following completion of the public review period
Submission of Final BAR and EMPr to the DMPR	Within the prescribed regulatory timeframe

10.2.1 Development of the Stakeholder Database

The existing stakeholder database for Booysendal Mine and the surrounding area will be reviewed and updated to identify stakeholders who may have an interest in, or be affected by, the proposed Project. Additional stakeholders will be identified through engagement with local representatives, responses to Project notifications and participation during the BA process.

The database will include relevant national and provincial authorities, the Ehlanzeni District Municipality, Thaba Chweu Local Municipality, ward councillors, traditional authorities, affected and adjacent landowners, lawful occupiers, surrounding communities, community representatives, environmental organisations and other stakeholders.

A register of I&APs will be maintained throughout the BA process and updated as additional stakeholders register or submit comments. The register will be used to facilitate the distribution of Project information and notifications.

10.2.2 Public Participation Media and Notification

A combination of communication methods will be used to notify stakeholders of the proposed Project

and opportunities to participate in the BA process. These include newspaper advertisements, site notices, written and electronic notifications, the BID and a Registration and Comment Form.

Notifications will be prepared in English and Sepedi, where appropriate, and distributed through accessible communication channels to facilitate participation by surrounding communities, including stakeholders with limited access to electronic communication.

10.2.3 Newspaper Advertisement

A newspaper advertisement was published on 29 October 2026 in the Steelburger/Lydenburg News, in English and Sepedi, to notify the broader public of the proposed Project and the BA process.

The advertisement provided an overview of the proposed development, its location, the EA application and opportunities for public participation. It also provided information on the availability of the DBAR and EMPr for public review from 10 November 2026 to 10 December 2026, together with contact details for registering as an I&AP or submitting comments.

10.2.4 Site Notices

Site notices are scheduled to be placed on 5 and 6 November 2026 at conspicuous and publicly accessible locations within and surrounding the proposed Project area. The notices will be prepared in English and Sepedi and will provide information on the proposed Project, the BA process, the public review period and opportunities for stakeholder participation.

10.2.5 Background Information Document and Registration and Comment Form

A BID will be prepared in English and Sepedi to provide stakeholders with an overview of the proposed Project, including its location, infrastructure components, purpose, applicable EA process and opportunities for participation.

The BID will be distributed to identified stakeholders together with a Registration and Comment Form, allowing stakeholders to register as I&APs and submit comments, concerns or information relevant to the proposed development.

10.3 Availability of the Draft Basic Assessment Report

The DBAR, EMPr and supporting specialist reports will be made available for a 31-day public review and comment period from 10 November 2026 to 10 December 2026. The documentation will provide stakeholders with information on the proposed Project, receiving environment, development alternatives, potential environmental and social impacts, specialist findings and proposed mitigation measures.

Hard copies of the DBAR will be placed at the locations listed in **Table 10-2**, while electronic copies will be accessible through the GCS website.

Table 10-2: Locations Where the Draft Basic Assessment Report Will Be Available for Public Review

Place	Address
Lydenburg Public Library	41 Viljoen Street, Mashishing
Bakone Ba Phetla Royal Kraal -	Ga-Phetla Village, Sticskop Makgotheng, Fetakgomo Tubatse

Place	Address
Magopheng	Local Municipality
Tonteldoos Secondary School	Draaikraal Farm, Klipbankspruit, Roossenekal, 1066
Elias Motsoaledi Local Municipality Satellite Office	143 Hugo Street, Roossenekal, 1066
Shopping Complex	Draaikraal
Maartenshoop Police Station	Naauwpoort Farm
Thusong Centre	Mashishing
GCS Website	https://www.gcs-sa.biz/public-documents/

Stakeholders are invited to review the documentation and submit written comments to GCS by 10 December 2026. Comments received will be recorded, considered and addressed in the CRR, which will accompany the FBAR submitted to the DMPR.

10.3.1 SMS Notifications

SMS notifications will be distributed, where appropriate, to stakeholders for whom valid mobile telephone numbers are available. The messages will provide information on the availability of the DBAR, the public review period and contact details for submitting comments or requesting further information.

10.3.2 E-mail and Written Notifications

Written and electronic notifications will be distributed to identified stakeholders, registered I&APs and relevant organs of state. The notifications will provide details of the proposed Project, the availability of the DBAR and EMPr, and the arrangements for submitting comments during the public review period.

10.3.3 Comments and Responses Report

A CRR will be maintained throughout the BA process to document comments and concerns raised by stakeholders and relevant authorities, together with the responses provided. Where applicable, the CRR will indicate how matters raised have been considered in the environmental assessment and addressed through amendments to the assessment documentation or proposed management measures.

The CRR will be updated following the public review period and included in the FBAR submitted to the DMPR for consideration.

10.4 SUMMARY OF ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

During the PPP undertaken between February and May 2026, stakeholders were also introduced to the proposed solar PV developments and their intended role in supporting the Mine's electricity requirements. The associated CRR records a range of questions, concerns and expectations relating to renewable energy infrastructure, environmental protection, cultural heritage, community livelihoods and stakeholder engagement. Although these comments were raised earlier, several matters are directly relevant to the proposed Project and provide important context for the current BA process.

The issues raised during the previous engagements are summarised below.

10.4.1 Cultural Heritage, Graves and Traditional Practices

Stakeholders expressed concerns regarding the potential disturbance of graves, ancestral burial grounds and other culturally significant sites within the broader Project area. Community representatives emphasised the importance of protecting these resources and maintaining access for traditional and cultural practices. Specific requests were made for traditional leaders and local elders to participate in identifying heritage resources, particularly where burial grounds and culturally significant sites may not be formally recorded.

These concerns highlight the importance of undertaking appropriate heritage investigations and maintaining consultation with affected communities to ensure that heritage resources are identified, avoided or appropriately managed during Project planning and implementation via the Chance Find and Fossil Find Procedures.

10.4.2 Biodiversity and Land Disturbance

Stakeholders raised questions regarding the potential disturbance of land and environmentally sensitive areas associated with the proposed developments. Particular interest was expressed in the measures that would be implemented to minimise environmental impacts and protect the surrounding natural environment.

These concerns are relevant to the proposed solar PV development, particularly regarding vegetation clearance, habitat disturbance and the placement of infrastructure within environmentally sensitive areas. The findings of the terrestrial biodiversity, aquatic biodiversity and other relevant specialist assessments will inform the identification of development constraints and appropriate mitigation measures.

10.4.3 Water Resources and Community Livelihoods

Concerns were raised regarding the potential contamination of water resources and the implications for surrounding communities and livestock. Stakeholders highlighted existing challenges relating to water availability and the reliance of certain communities on local water sources for domestic and agricultural purposes.

Stakeholders also requested clarification on the measures that would be implemented to manage water-related impacts and monitor environmental performance. These concerns reinforce the importance of assessing potential impacts on drainage features, water quality, stormwater runoff and erosion during the construction and operational phases.

10.4.4 Waste Management and Project Safety

Stakeholders requested information regarding the management, recycling and disposal of solar panels, particularly where damaged or redundant equipment may present environmental risks. Further to this operational safety was noted as an area of concern.

The comments highlight the importance of appropriate waste management, pollution prevention and operational safety measures. The environmental assessment will consider waste generation and

management requirements associated with the proposed solar PV development and its supporting infrastructure.

10.4.5 Project Purpose and Electricity Supply

Stakeholders sought clarification on the relationship between the proposed solar PV and Battery Energy Storage System developments, including how the electricity generated would support mining operations and reduce reliance on the national electricity grid. Questions were also raised regarding whether the proposed infrastructure would provide electricity directly to surrounding communities.

During the previous engagements, it was explained that the renewable energy developments are primarily intended to support the Mine's electricity requirements and improve energy supply reliability.

10.4.6 Employment, Skills Development and Local Procurement

Employment opportunities and local economic participation were recurring concerns during the previous engagements. Stakeholders highlighted unemployment within surrounding communities and requested that local residents, particularly young people, be considered for employment and skills development opportunities associated with the proposed developments.

Concerns were also raised regarding access to procurement opportunities, the participation of local businesses and transparency in recruitment processes. Stakeholders requested clear communication regarding potential employment opportunities and the mechanisms through which local communities could participate during Project implementation.

10.4.7 Stakeholder Engagement and Access to Information

Stakeholders emphasised the importance of continued consultation, transparent communication and regular feedback throughout the development process. Concerns were raised regarding access to Project information and the extent to which community comments are considered during planning and environmental decision-making.

Requests were made for further engagement with traditional authorities, community representatives and other affected stakeholders, particularly where proposed infrastructure may affect cultural heritage resources, land use or existing community interests. Stakeholders also requested opportunities to review the findings of environmental investigations and obtain clarification on proposed mitigation measures.

10.4.8 Consideration of Previous Comments in the Current BA Process

The concerns raised during the previous consultation provide relevant background for the current BA process. Particular attention will be given to cultural heritage protection, biodiversity sensitivities, water resource management, land disturbance, waste management and potential social impacts. These matters will be considered through the relevant specialist assessments and incorporated into the assessment of environmental impacts and development alternatives.

The previous stakeholder engagements do not replace the statutory public participation

requirements applicable to the proposed Project. The DBAR will be made available for public review and comment from 10 November to 10 December 2026, providing stakeholders with an opportunity to comment specifically on the proposed development and associated infrastructure.

11 THE ENVIRONMENTAL ATTRIBUTES

This section describes the existing environmental characteristics of the proposed Project area and surrounding landscape, providing the baseline against which potential environmental impacts are assessed. The description is informed by available environmental information, relevant spatial datasets and the findings of specialist investigations undertaken for the proposed Project. It considers the physical, biological and socio-economic characteristics of the receiving environment, with particular emphasis on environmental sensitivities and constraints that may influence the location, design, construction, operation and decommissioning of the proposed Project.

The baseline assessment addresses climate and meteorology, topography, geology, soils, land capability and agricultural potential, terrestrial biodiversity, avifauna, wetlands and aquatic biodiversity, hydropedology, heritage and palaeontological resources, visual characteristics and other relevant environmental attributes. Where applicable, the environmental sensitivities identified by the Screening Tool are compared with the findings of the specialist SSV assessments. The findings are used to identify environmental constraints, inform the selection and refinement of the preferred development layout, assess potential environmental impacts and establish appropriate avoidance, mitigation, rehabilitation and monitoring measures for inclusion in the EMPr.

Eight specialist reports were prepared to inform the environmental assessment of the proposed Project, as summarised in **Table 11-1**. These reports are included as appendices to this Report, with their findings and recommendations incorporated into the relevant environmental baseline descriptions, impact assessments and EMPr.

Table 11-1: Specialist Studies Undertaken

Specialist Study	Attached in Appendix
Soil and Agricultural Compliance Statement	Appendix C
Terrestrial Biodiversity Assessment	Appendix D
Avifaunal Assessment	Appendix E
Wetland Functional and Impact Assessment	Appendix F
Hydropedological Assessment	Appendix G
Heritage Impact Assessment, including Palaeontological Considerations	Appendix H
Visual Impact Assessment	Appendix I

11.1 Climate and Meteorology

The proposed Project will occur within the summer rainfall region of Mpumalanga. The hydropedological assessment describes the regional climate as being characterised by summer rainfall and very dry winters, with much of the annual rainfall occurring as thunderstorms between approximately November and January.

Mean Annual Precipitation varies spatially across the broader region from approximately 600 mm in the west to 720 mm in the east. Mean daily temperatures vary seasonally and with elevation, ranging

from a reported winter minimum of approximately 2.8°C to a summer maximum of approximately 24.9°C. Temperatures are generally higher on the lower-lying plains and lower on the elevated plateaus and mountainous terrain (The Biodiversity Company, 2026e).

The strongly seasonal rainfall regime is environmentally important because the majority of recharge, surface runoff, wetland saturation and erosion-generating rainfall occurs during the summer period. The distribution and intensity of summer rainfall therefore influence soil moisture, hillslope recharge, wetland functioning, vegetation condition and the potential mobilisation of sediment from disturbed surfaces.

The agricultural specialist assigned a climate capability of C8 to the Project area. When considered together with the site-specific soil and land capability, the climatic regime contributes to the moderate limitations on agricultural production potential identified across much of the development area (The Biodiversity Company, 2026a).

11.2 Topography and Landscape

The proposed Project will occur within a mountainous and highly undulating landscape characterised by prominent north–south orientated ridgelines, steep slopes and deeply incised valleys. Across the wider visual assessment area, elevations range from approximately 886 metres above mean sea level (mamsl) to 2 331 mamsl (**Figure 11-1)** (Donaway Environmental, 2026).

The proposed PV development is located predominantly within a valley and midslope setting, rather than on prominent mountain crests or ridgelines. This topographic position has important environmental implications. It assists in containing long-distance views of the development but also creates a physical relationship between upslope recharge areas and lower-lying wetlands and drainage features.

The broader landscape comprises major chains of hills with predominantly eastern and western aspects. The interaction between steep topography, variable soil depth and seasonal rainfall gives rise to a combination of vertically draining recharge soils, localised lateral flow and hydrologically responsive valley-bottom environments (The Biodiversity Company, 2026e)

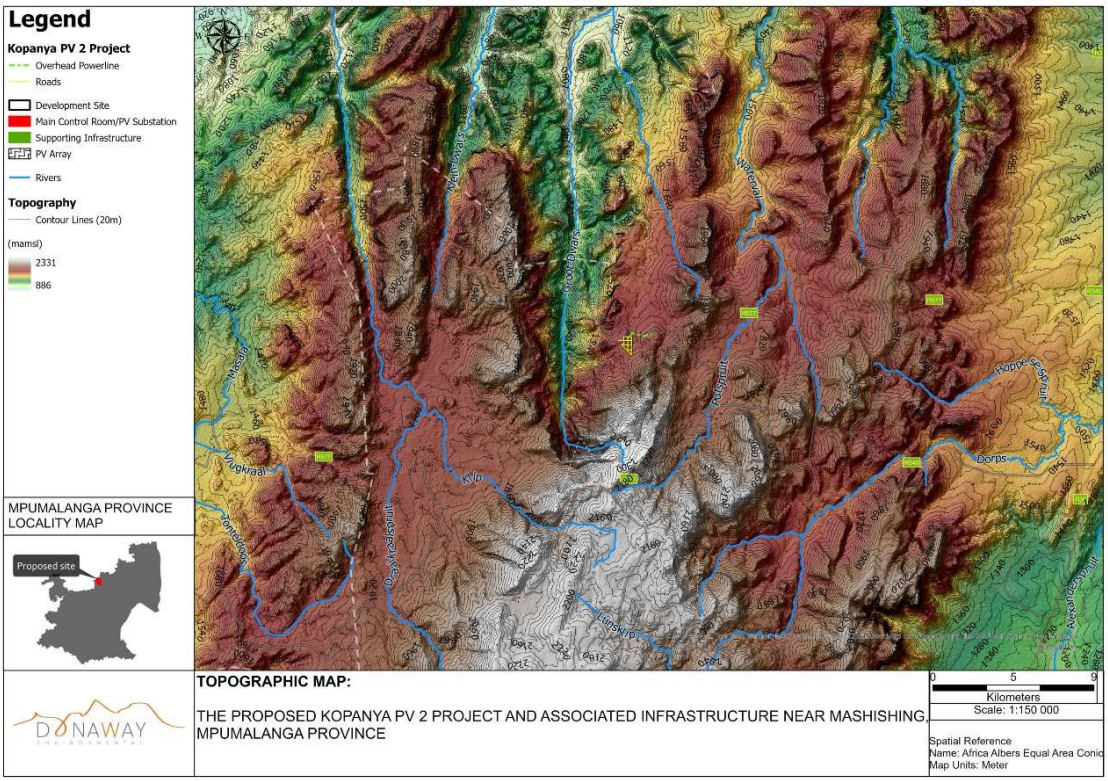


Figure 11-1: Topographic Context (Donaway Environmental, 2026)

11.3 Geology

The regional geology is associated with the mafic intrusive rocks of the Upper and Main Zones of the Rustenburg Layered Suite of the Bushveld Igneous Complex. The hydropedological assessment notes that the undulating hills are generally associated with heterogeneous rocky substrates and variable soil development conditions (The Biodiversity Company, 2026e).

The geological and geomorphological setting influences both soil development and hillslope hydrology. Upland and midslope areas generally support freely drained soils in which vertical infiltration is dominant, while lower-lying areas may contain more clay-rich or hydromorphic soils where restrictive horizons promote slower drainage, lateral flow or surface return flow.

In some parts of the landscape, infiltrating water may percolate into fractured bedrock or semi-permeable underlying material, thereby contributing to groundwater storage and broader catchment recharge. The geological substrate should therefore be considered together with soil and hillslope position when interpreting the hydrological functioning of the Project area (The Biodiversity Company, 2026e).

11.4 Soils, Land Capability and Agricultural Potential

The Soil and Agricultural Compliance Statement undertaken by The Biodiversity Company (2026a) assessed the agricultural sensitivity of the proposed Project area, including a 50 m buffer around

the development footprint. The assessment considered the Screening Tool classifications, available agricultural datasets, land capability, existing land uses and site-specific soil conditions. The purpose of the assessment was to verify the Screening Tool findings and determine the agricultural sensitivity of the proposed Project area.

11.4.1 Screening Tool and Site Sensitivity Verification Outcomes

The Screening Tool classified the Agriculture Theme as ranging from Medium to High sensitivity, primarily associated with mapped land capability classes and areas historically identified as rainfed crop cultivation or planted pastures. Site-specific verification was undertaken to determine whether these classifications accurately reflected the soil characteristics, agricultural potential and current land uses within the proposed Project area (The Biodiversity Company, 2026a). The Screening Tool sensitivity classification is illustrated in **Figure 11-2**.

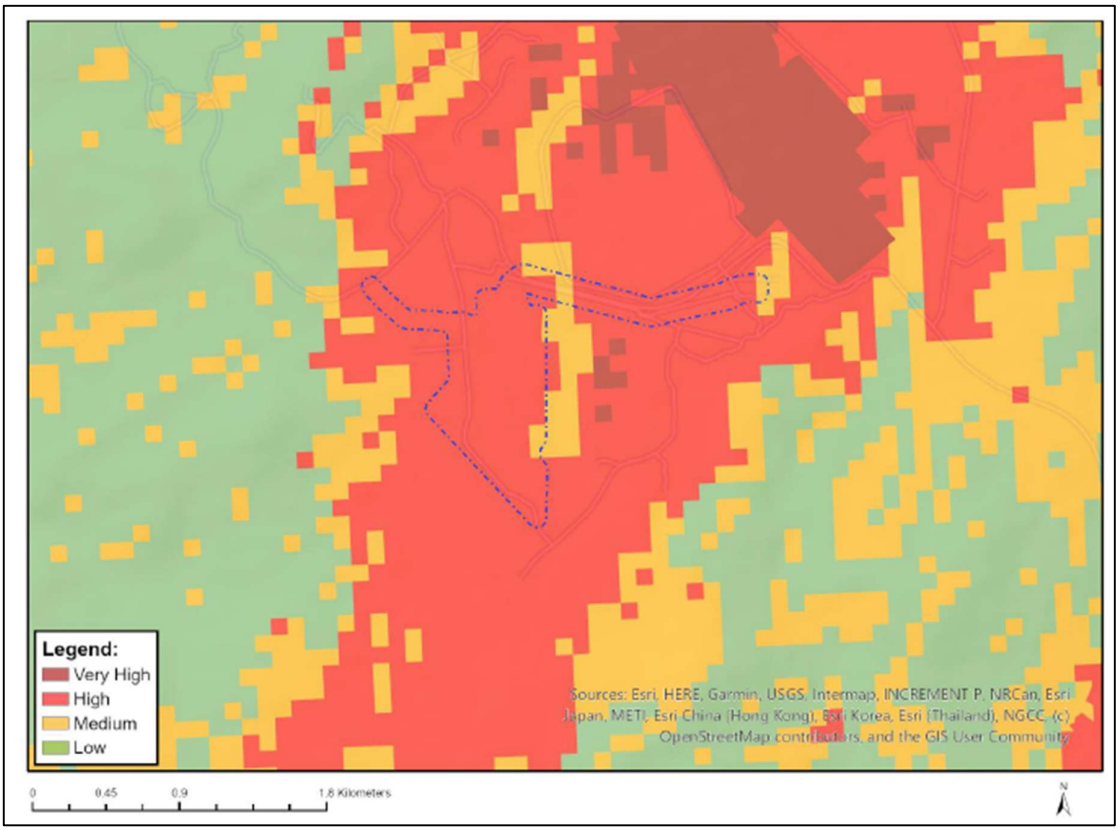


Figure 11-2: Screening Tool Agricultural Theme Sensitivity (The Biodiversity Company, 2026a)

The field investigation identified eight representative soil forms, namely Hutton, Katspruit, Nkonkoni, Vaalbos, Glenrosa, Mispah, Johannesburg and Witbank. The specialist established that the agricultural potential of these soils varies according to soil depth, drainage, restrictive horizons, wetness and the extent of historical disturbance. The proposed Project area is predominantly associated with soils of Medium agricultural sensitivity, with areas of Low sensitivity associated with shallow, rocky or disturbed soils (The Biodiversity Company, 2026a).

The verification confirmed the Screening Tool's Low-Moderate land capability classifications in certain areas but disputed the higher sensitivity classifications where field observations indicated lower agricultural potential. Areas mapped as historically cultivated land were also found not to represent current cultivation. The specialist therefore concluded that the Screening Tool's higher agricultural sensitivity classifications do not accurately reflect conditions across the entire proposed Project area (The Biodiversity Company, 2026a).

The comparison between the Screening Tool classifications and verified agricultural sensitivities is summarised in **Table 11-2**.

Table 11-2: Agricultural Resources and Soils Site Sensitivity Verification Outcomes (The Biodiversity Company, 2026a)

Screening Tool Feature	Screening Tool Sensitivity	Verified Sensitivity	Outcome
Rainfed crop cultivation / planted pastures	High	Medium	Disputed. Historical cultivation occurs on soils with Low-Moderate land capability, including Hutton.
Rainfed crop cultivation / planted pastures	High	Low	Disputed. Historical cultivation occurs on soils with Very Low to Low land capability, including Mispah and Johannesburg.
Moderate to Moderate-High (LC 8-10)	High	Medium	Disputed. Hutton, Vaalbos and Nkonkoni soils have Medium agricultural potential.
Moderate to Moderate-High (LC 8-10)	High	Low	Disputed. Shallow Mispah and Glenrosa soils have restrictive characteristics that limit cultivation.
Low-Moderate (LC 7)	Medium	Medium	Validated. Includes Hutton, Nkonkoni and hydromorphic Katspruit soils.
Low-Moderate (LC 7)	Medium	Low	Disputed. Disturbed Johannesburg Technosols have Very Low to Low land capability.

The verified agricultural sensitivity of the proposed Project area is illustrated in **Figure 11-3**. The assessment established that agricultural sensitivity ranges from Low to Medium, with the higher sensitivity areas generally corresponding to deeper, freely drained soils and hydromorphic soil conditions. The specialist also confirmed that the proposed Project does not fall within a Protected Agricultural Area (The Biodiversity Company, 2026a).

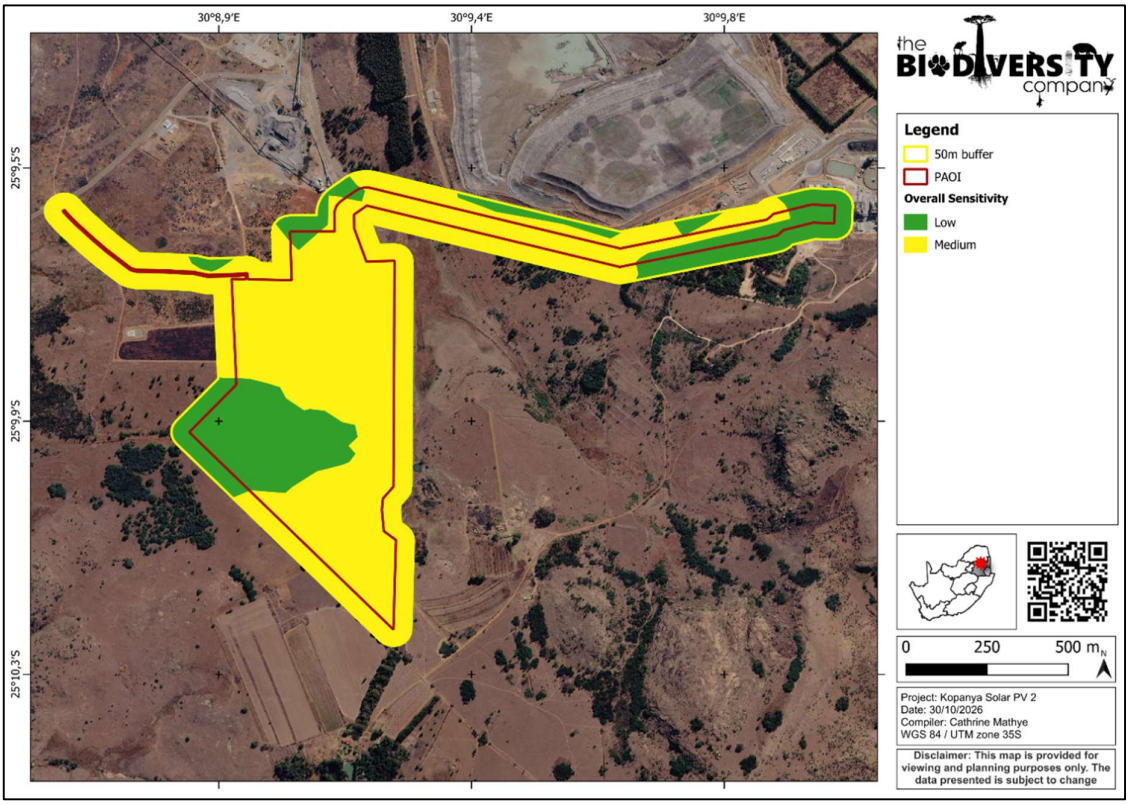


Figure 11-3: Verified Agricultural Sensitivity (The Biodiversity Company, 2026a)

Overall, the SSV partially confirmed and partially disputed the Screening Tool outcomes. The verified Low to Medium agricultural sensitivity provides a more representative basis for characterising the agricultural resources and land capability of the proposed Project area (The Biodiversity Company, 2026a).

11.4.2 Baseline Soil Conditions, Land Capability and Agricultural Potential

The proposed Project area is predominantly associated with the Ab29 land type, which is characterised by red-yellow apedal, freely drained soils. The Soil and Agricultural Compliance Statement undertaken by The Biodiversity Company (2026a) included a desktop assessment and field verification of soil resources within the development footprint and a 50 m buffered assessment area. The investigation identified eight representative soil forms, namely Hutton, Katspruit, Nkonkoni, Vaalbos, Glenrosa, Mispah, Johannesburg and Witbank. The distribution of these soil forms is illustrated in **Figure 11-4**.

The identified soils exhibit varying physical characteristics and agricultural potential. Hutton, Nkonkoni and Vaalbos soils are generally freely drained, with relatively favourable aeration and agricultural potential, although soil depth and restrictive subsurface horizons may limit cultivation in certain areas. Katspruit soils are associated with hydromorphic conditions and are subject to periodic or prolonged saturation, which restricts their suitability for cultivation. Glenrosa and Mispah soils are generally shallow and have restrictive characteristics, while Johannesburg and

Witbank soils represent disturbed or transported soil materials with limited agricultural potential (The Biodiversity Company, 2026a).

Table 11-3 summarises the soil characteristics and agricultural sensitivity identified within the proposed Project area.

Table 11-3: Summary of Soil Resources and Agricultural Potential (The Biodiversity Company, 2026a)

Soil Form	Characteristics	Agricultural Sensitivity	Agricultural Potential
Hutton	Deep, red apedal, freely drained soils	Medium	Comparatively favourable potential for cultivation
Nkonkoni / Vaalbos	Freely drained soils with restrictive lower horizons or shallow rock	Medium	Moderate potential, subject to soil depth limitations
Katspruit	Hydromorphic soils subject to periodic or prolonged saturation	Medium	Cultivation constrained by wetness
Glenrosa / Mispah	Shallow, lithic soils with restrictive horizons	Low	Limited cultivation potential
Johannesburg / Witbank	Disturbed or transported soils, including Technosols	Low	Limited agricultural potential due to disturbance

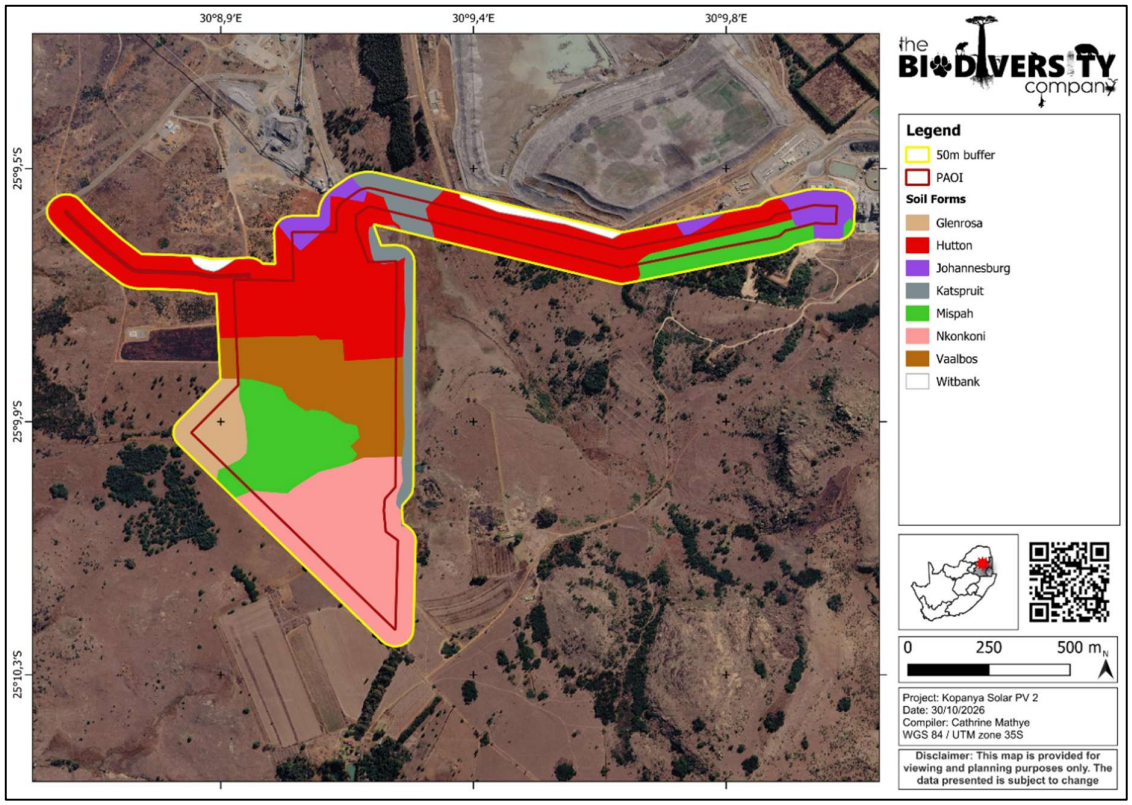


Figure 11-4: Soil Forms within the Proposed Project area (The Biodiversity Company, 2026a)

The specialist determined land potential using soil characteristics, climatic conditions and land capability classifications. The assessment identified land potential levels L6, L7 and L8, together with areas classified as Vlei. The proposed Project area is predominantly characterised by arable land, with smaller areas of marginal non-arable land associated with shallow, rocky, hydromorphic or disturbed soils. The distribution of land potential classes is illustrated in **Figure 11-5** (The

Biodiversity Company, 2026a).

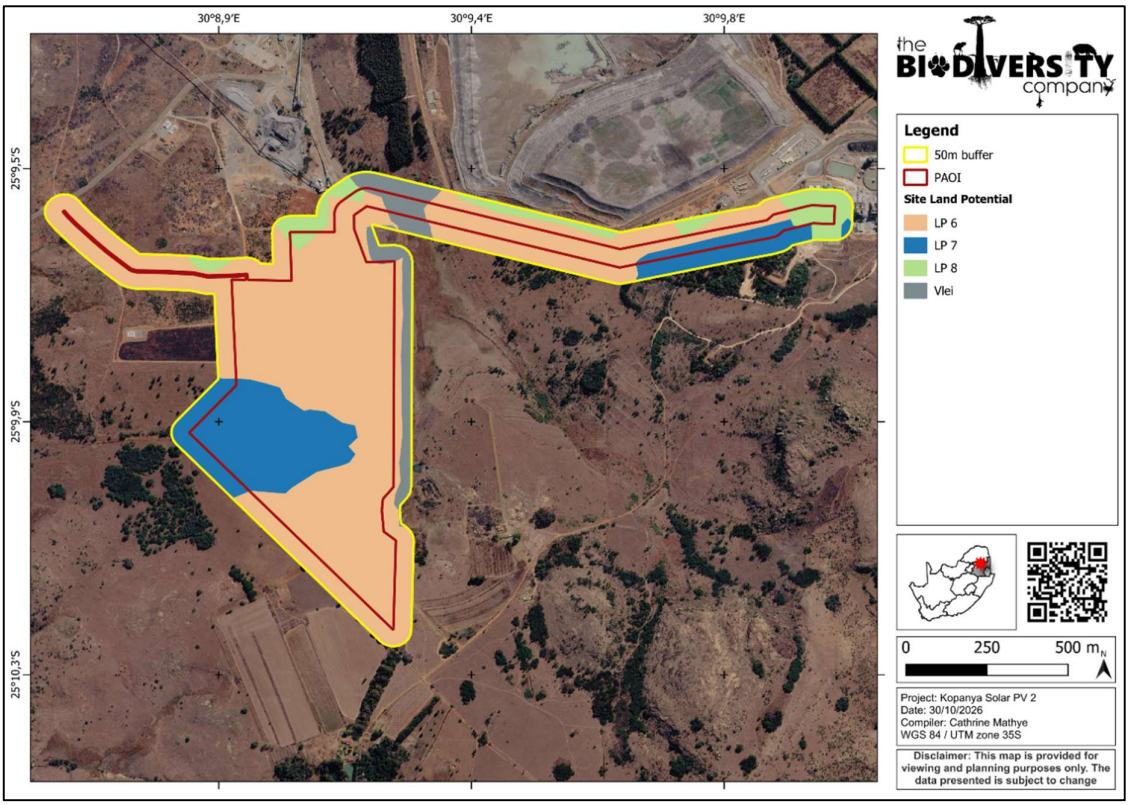


Figure 11-5: Land Potential within the Proposed Project area (The Biodiversity Company, 2026a)

Existing land uses within the assessment area include natural veld, rocky areas, watercourses and infrastructure associated with BS Mine, including roads, powerlines, a conveyor belt and electrical infrastructure. Although historical cultivated field boundaries were identified in the Screening Tool datasets, the specialist confirmed that no active crop farming or associated irrigation infrastructure was identified within the proposed Project area. The proposed Project area is also situated outside identified Protected Agricultural Areas (The Biodiversity Company, 2026a).

Overall, the baseline assessment established that the agricultural potential of the proposed Project area ranges from Low to Medium. While some soils have characteristics suitable for cultivation, the absence of active agricultural production, together with the presence of restrictive soil conditions and existing mining-related infrastructure, limits the agricultural significance of the affected land (The Biodiversity Company, 2026a).

11.4.3 Key Specialist Findings and Conclusions

The Biodiversity Company (2026a) concluded that the proposed Project area is characterised by Low to Medium agricultural sensitivity, based on the verified soil characteristics, land capability and existing land uses.

The specialist further considered the allowable development limits applicable to solar PV facilities

in relation to the verified agricultural sensitivity. For the proposed generation capacity of up to 20 MWac, an allowable development limit of 100 ha was identified for areas of Low and Medium agricultural sensitivity outside cultivated field boundaries. The proposed development footprint of approximately 41 ha falls within this limit (The Biodiversity Company, 2026a).

The specialist findings are summarised in **Table 11-4**.

Table 11-4: Summary of Soil and Agricultural Specialist Findings (The Biodiversity Company, 2026a)

Assessment Component	Specialist Finding
Screening Tool sensitivity	Medium to High
Verified agricultural sensitivity	Low to Medium
Predominant soil forms	Hutton, Nkonkoni and Vaalbos
Other soil forms identified	Katspruit, Glenrosa, Mispah, Johannesburg and Witbank
Land potential	L6, L7, L8 and Vlei conditions
Agricultural land use	No active crop farming or irrigation infrastructure identified
Historical cultivation	Historical cultivated field boundaries identified in Screening Tool datasets
Protected Agricultural Area	Proposed Project falls outside identified Protected Agricultural Areas
Proposed development footprint	Approximately 41 ha
Proposed generation capacity	Up to 20 MWac
Allowable development limit	100 ha for Low and Medium sensitivity outside cultivated field boundaries
Overall specialist finding	Agricultural sensitivity ranges from Low to Medium, with no active agricultural production identified within the proposed Project area

The Biodiversity Company (2026a) concluded that the verified soil characteristics, land capability and current land uses support the classification of the proposed Project area as having Low to Medium agricultural sensitivity. The assessment further established that the proposed development footprint falls within the applicable allowable development limit and that the site does not contain active cultivated fields or identified Protected Agricultural Areas.

The specialist findings provide the basis for determining the agricultural constraints associated with the proposed Project and informing the environmental assessment and detailed development planning.

11.5 Terrestrial Biodiversity, Animal Species and Plant Species

The Terrestrial Biodiversity, Animal Species and Plant Species Assessment undertaken by The Biodiversity Company (2026b) evaluated the ecological characteristics of the proposed Project area and associated infrastructure at BS Mine. The assessment included a desktop review of national and provincial biodiversity datasets and a wet season field survey undertaken in January 2026. The specialist investigated vegetation composition, habitat condition, ecological connectivity and the potential occurrence of plant and animal Species of Conservation Concern (SCC). The findings informed the determination of Site Ecological Importance (SEI) and verification of the sensitivities assigned by the Screening Tool (The Biodiversity Company, 2026b).

11.5.1 Screening Tool and Site Sensitivity Verification Outcomes

The Screening Tool assigned Very High sensitivity to the Terrestrial Biodiversity Theme, High sensitivity to the Animal Species Theme and Low sensitivity to the Plant Species Theme. These classifications reflect the broader conservation importance of the landscape, including the

Sekhukhune Montane Grassland vegetation type, the Steelpoort Key Biodiversity Area and areas identified as priorities for biodiversity conservation and protected area expansion. However, the specialist established that the Screening Tool classifications do not adequately distinguish between the modified, alien-invaded and remaining functional habitats within the Project Area of Influence (PAOI) (The Biodiversity Company, 2026b).

The SSV identified four habitat types, namely Disturbed Grassland, Alien Stands, Modified areas and Water Resources. Based on their ecological condition, functionality and conservation importance, the specialist assigned sensitivities ranging from Very Low to High. The overall Very High Terrestrial Biodiversity sensitivity was therefore disputed, while the Animal Species sensitivity was revised from High to Medium for non-avian fauna. The Low Plant Species sensitivity was validated (The Biodiversity Company, 2026b).

The comparison between the Screening Tool classifications and verified sensitivities is summarised in **Table 11-5**.

Table 11-5: Terrestrial Biodiversity, Animal Species and Plant Species Site Sensitivity Verification Outcomes (The Biodiversity Company, 2026b)

Screening Tool Theme / Habitat	Screening Tool Sensitivity	Verified Sensitivity	Outcome
Terrestrial Biodiversity – Modified areas	Very High	Very Low	Disputed
Terrestrial Biodiversity – Alien Stands	Very High	Low	Disputed
Terrestrial Biodiversity – Disturbed Grassland	Very High	Medium	Disputed
Terrestrial Biodiversity – Water Resources	Very High	High	Disputed
Animal Species	High	Medium	Disputed
Plant Species	Low	Low	Validated

The specialist confirmed the Low Plant Species sensitivity, as no threatened or protected plant species were recorded during the field survey. Similarly, no threatened or protected non-avian animal species were confirmed, although suitable habitats may occasionally be utilised by SCC, particularly those associated with Water Resources. The Animal Species verification relates to non-avian fauna, while avifauna is addressed separately in the Avifaunal Assessment (The Biodiversity Company, 2026b).

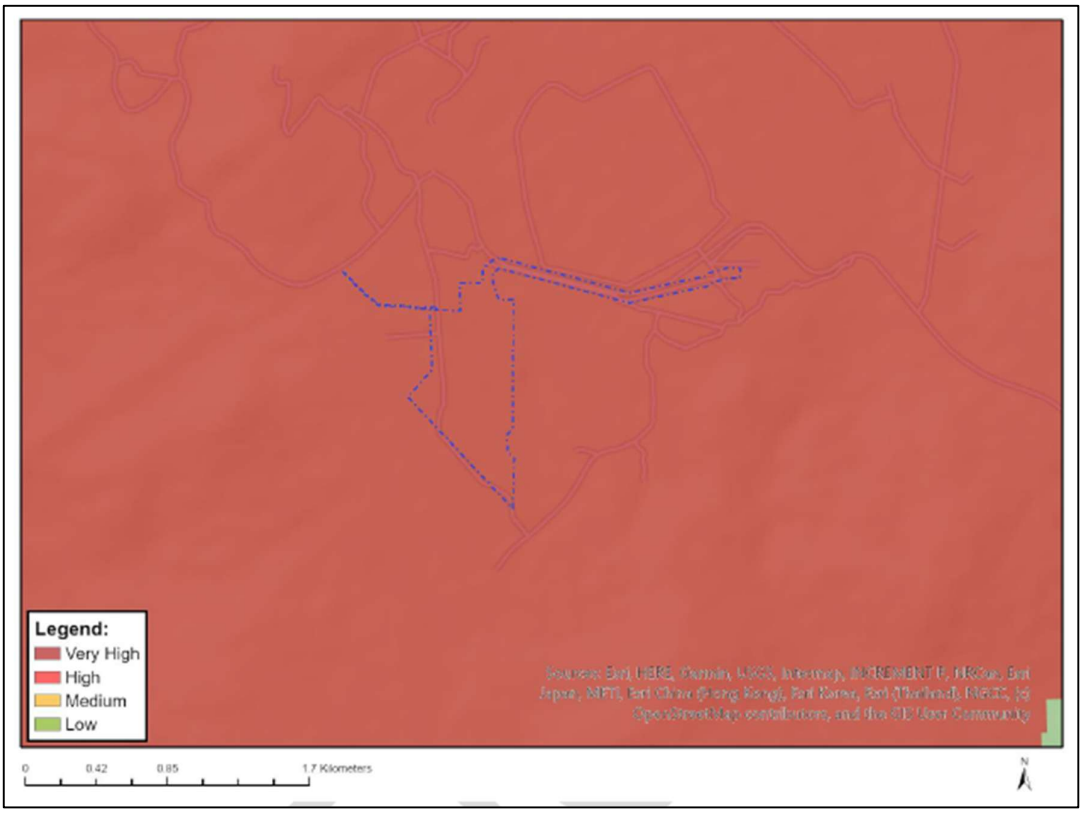


Figure 11-6: Screening Tool Terrestrial Biodiversity Theme Sensitivity (The Biodiversity Company, 2026b)

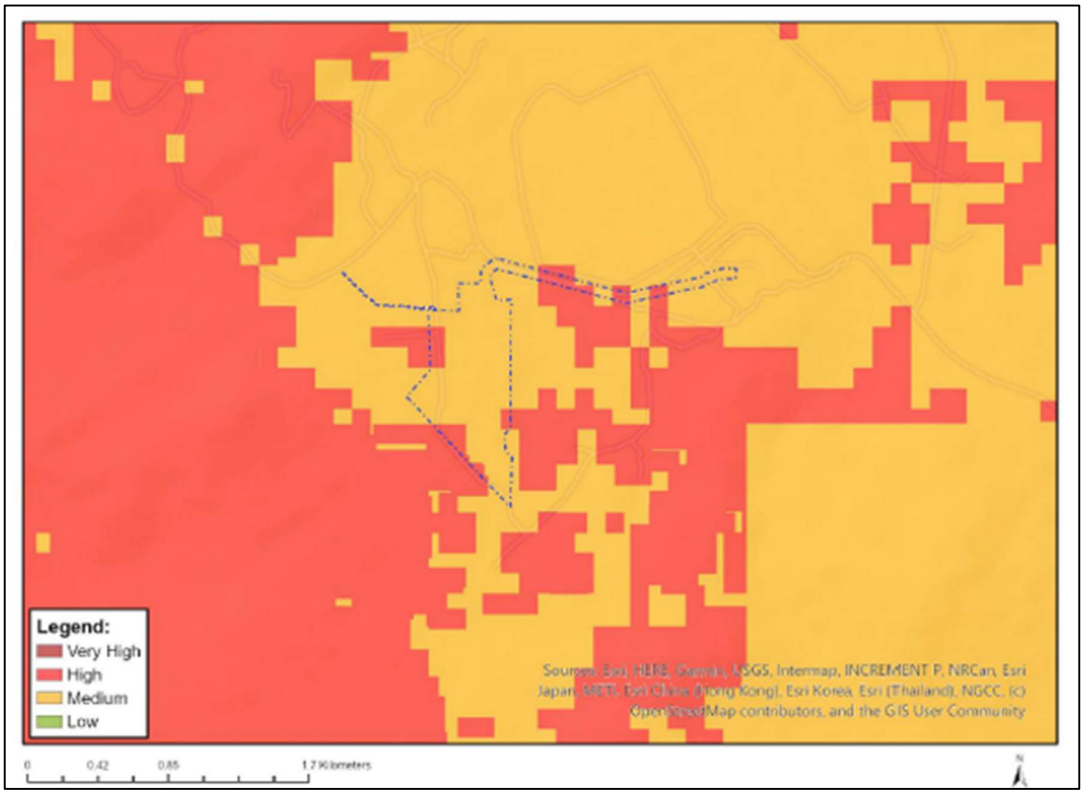


Figure 11-7: Screening Tool Animal Species Theme Sensitivity (The Biodiversity Company, 2026b)

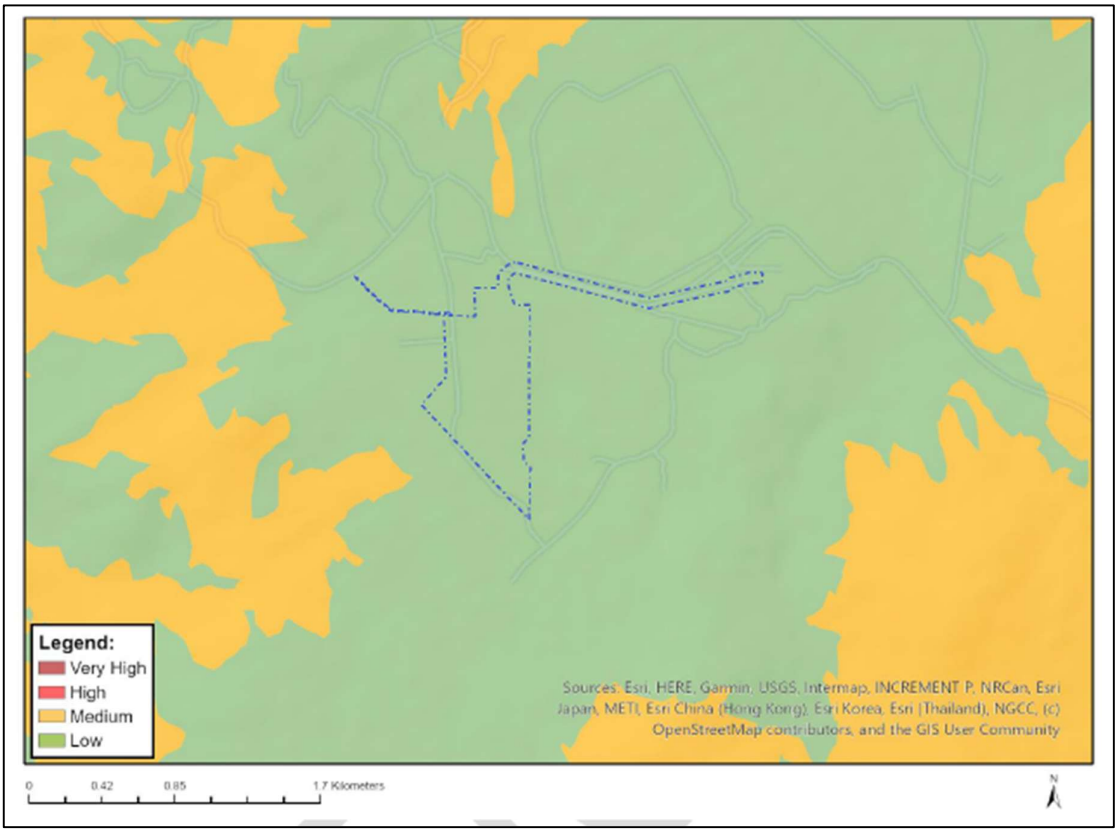


Figure 11-8: Screening Tool Plant Species Theme Sensitivity (The Biodiversity Company, 2026b)

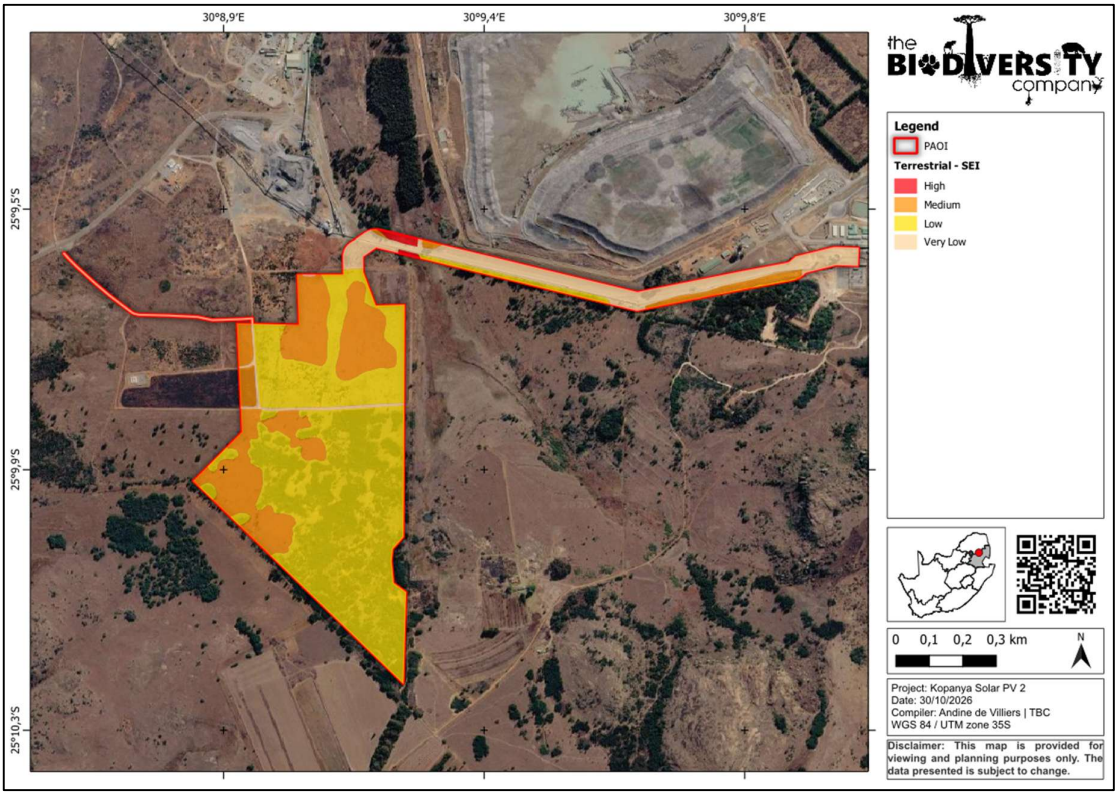


Figure 11-9: Verified Terrestrial Site Ecological Importance (The Biodiversity Company, 2026b)

Overall, the SSV established that the proposed Project area is characterised by varying degrees of ecological sensitivity, with Modified areas and Alien Stands representing the least sensitive habitats and Water Resources representing the most sensitive. The verified classifications provide a more representative basis for identifying ecological constraints and informing the detailed layout of the proposed Project (The Biodiversity Company, 2026b).

11.5.2 Baseline Terrestrial Biodiversity, Vegetation and Fauna

11.5.2.1 Ecologically Important Landscape Features

The proposed Project is situated within the Grassland Biome and the Sekhukhune Montane Grassland vegetation type, in a landscape recognised for its biodiversity conservation importance. The broader PAOI overlaps with several national and provincial biodiversity planning features, including the Steelpoort Key Biodiversity Area, Mpumalanga Intact Grasslands and areas identified as priorities for protected area expansion. These features indicate the importance of the surrounding landscape for biodiversity conservation and the maintenance of ecological processes, notwithstanding the historical disturbance associated with mining and other land uses (The Biodiversity Company, 2026b).

The specialist reviewed ecosystem threat status, ecosystem protection levels, the Mpumalanga Biodiversity Sector Plan (MBSP), protected areas, protected area expansion priorities, Key Biodiversity Areas and strategic transmission corridors. The assessment established that the PAOI overlaps with a Least Concern ecosystem that is classified as Not Protected in terms of ecosystem protection levels. The MBSP identifies Other Natural Areas, Moderately Modified Areas associated with historical cultivation and Heavily Modified Areas within the PAOI. The assessment also confirmed the presence of mapped Intact Mpumalanga Grasslands, reflecting the broader conservation importance of remaining grassland habitats (The Biodiversity Company, 2026b).

The ecologically important landscape features identified by the specialist are summarised in **Table 11-6**.

Table 11-6: Ecologically Important Landscape Features (The Biodiversity Company, 2026b)

Biodiversity Feature	Specialist Finding
Ecosystem Threat Status	The Project Area of Influence (PAOI) overlaps with Sekhukhune Montane Grassland, classified as Least Concern.
Mpumalanga Intact Grasslands	The PAOI overlaps with areas identified as intact grassland in the Mpumalanga Biodiversity Sector Plan.
Ecosystem Protection Level	The associated ecosystem is classified as Not Protected.
Mpumalanga Biodiversity Sector Plan	The PAOI overlaps with Other Natural Areas, Moderately Modified Areas (old lands) and Heavily Modified Areas.
Protected Areas	The PAOI is situated less than 3 km from Davel Private Nature Reserve and approximately 8 km from Tim Tilden-Davis Nature Reserve and Verloren Vallei Nature Reserve.
National Protected Areas Expansion Strategy	The PAOI overlaps with identified priority focus areas for protected area expansion.
Mpumalanga Protected Areas Expansion Strategy	The PAOI overlaps with areas identified for protected area expansion.
Key Biodiversity Areas	The PAOI overlaps with the Steelpoort Key Biodiversity Area.
Strategic Transmission Corridors	The PAOI overlaps with the International Corridor.
Mpumalanga Ecological	No overlap identified.

Biodiversity Feature	Specialist Finding
Corridors	
Strategic Water Source Areas	No overlap identified.
National Freshwater Priority Areas	No overlap with mapped Freshwater Ecosystem Priority Area wetlands or rivers identified.
South African Inventory of Inland Aquatic Ecosystems	No overlap with mapped wetlands or rivers identified.
Mpumalanga Highveld Grassland Wetlands	No overlap identified.

The specialist established that the PAOI does not overlap with mapped Mpumalanga ecological corridors, Strategic Water Source Areas or certain nationally identified freshwater priority features. However, these desktop findings do not exclude the presence of site-specific Water Resources, which were identified during the field assessment and are addressed in the separate Wetland Assessment. Similarly, the identification of Intact Mpumalanga Grasslands and protected area expansion priorities reflects landscape-level conservation planning and does not necessarily indicate that all areas within the proposed Project footprint remain in a natural condition (The Biodiversity Company, 2026b).

The biodiversity planning datasets indicate that the proposed Project is situated within a landscape of recognised ecological importance, particularly in relation to remaining grassland habitats, the Steelpoort Key Biodiversity Area and protected area expansion priorities. However, the specialist established that the ecological condition of the PAOI varies considerably, with substantial portions affected by historical disturbance and alien invasive vegetation. The landscape-level findings must therefore be considered together with the verified habitat conditions and SEI classifications when determining ecological constraints within the proposed Project area (The Biodiversity Company, 2026b).

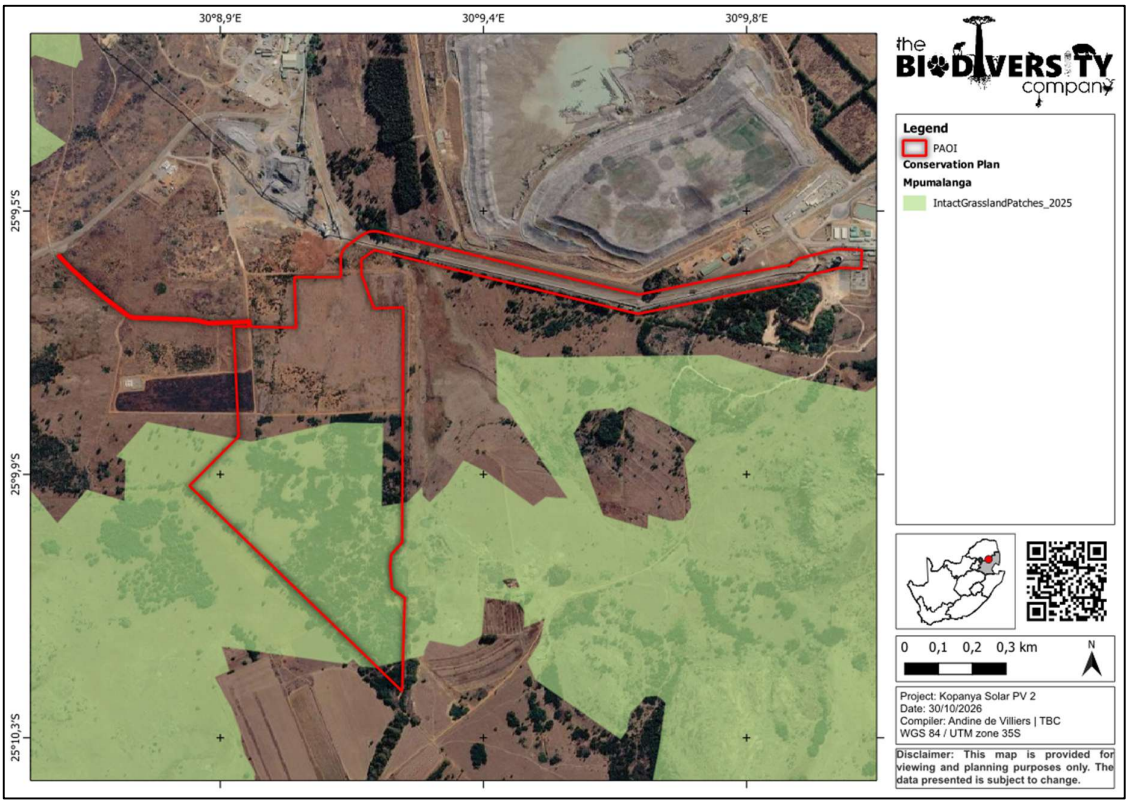


Figure 11-10: Mpumalanga Biodiversity Sector Plan Classification of the Proposed Project area (The Biodiversity Company, 2026b)

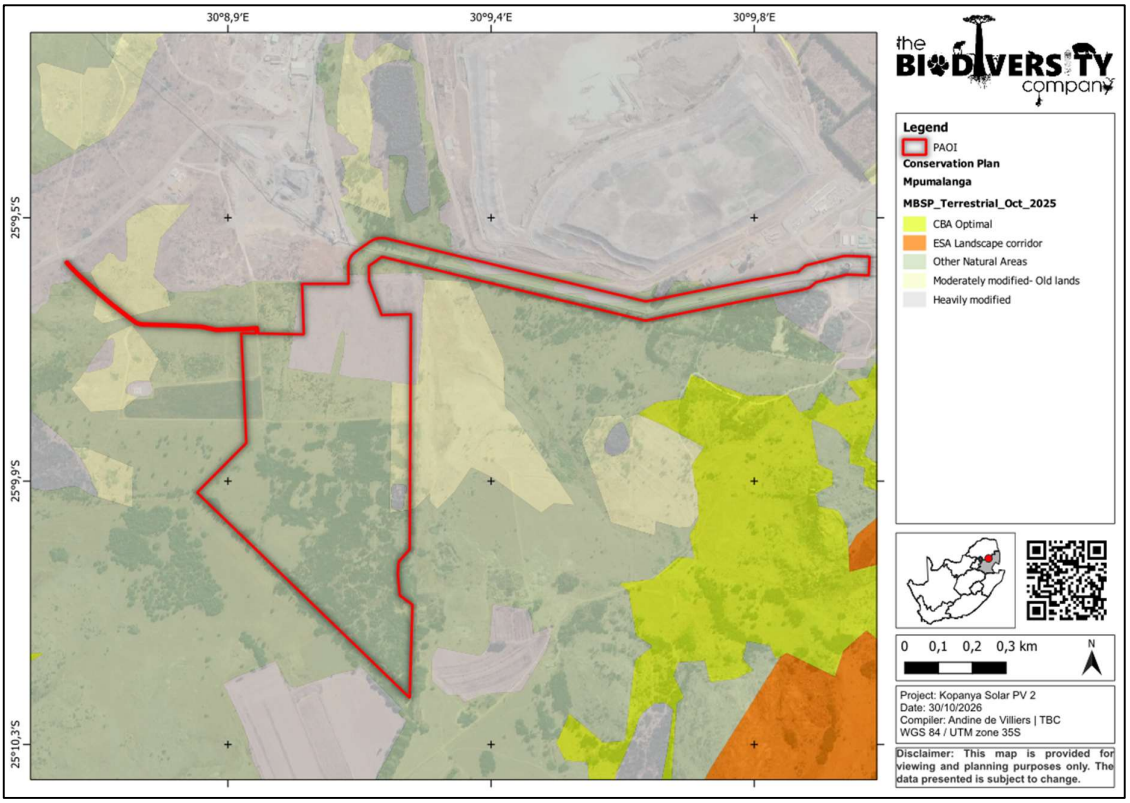


Figure 11-11: Mpumalanga Intact Grasslands within the Project Area of Influence (The Biodiversity Company, 2026b)

11.5.2.2 Vegetation Types and Terrestrial Habitats

The PAOI falls within the Grassland Biome and is associated with the Sekhukhune Montane Grassland vegetation type. This vegetation is characterised by grass-dominated communities with associated forbs and other herbaceous species, with vegetation composition influenced by rainfall, grazing, fire and local environmental conditions. The specialist noted that portions of the natural vegetation have been modified, although remnants of the vegetation type remain within the assessed area (The Biodiversity Company, 2026b).

The specialist identified four habitat types within the PAOI, namely Disturbed Grassland, Alien Stands, Modified areas and Water Resources. The habitats were initially delineated using aerial imagery and subsequently refined through field observations. The majority of the assessed area comprises Alien Stands and Modified habitats, which exhibit reduced ecological integrity, while Disturbed Grassland retains indigenous vegetation and some ecological functionality. Water Resources, including an unchannelled valley-bottom wetland, provide important habitat and ecological connectivity within the surrounding landscape (The Biodiversity Company, 2026b).

The characteristics and ecological functions of these habitats are summarised in **Table 11-7**, while their spatial distribution is illustrated in **Figure 11-12**.

Table 11-7: Summary of Terrestrial Habitat Types (The Biodiversity Company, 2026b)

Habitat Type	Description	Ecological Function
Disturbed Grassland	Grassland affected by grazing, alien invasive plants and surrounding land uses. Retains some characteristics of Sekhukhune Montane Grassland.	Provides foraging and refuge habitat for fauna, supports pollination and seed dispersal, and contributes to soil stability and water infiltration.
Alien Stands	Areas heavily invaded by alien plants, including Acacia species, with limited indigenous vegetation remaining.	Provides limited habitat for generalist species but alters vegetation composition, water use and natural ecological processes.
Modified areas	Areas substantially transformed by mining, infrastructure, agriculture and other historical land uses.	Limited remaining natural habitat and reduced ecological functionality.
Water Resources	Water-related habitats, including an unchannelled valley-bottom wetland, associated with drainage and hydrological processes.	Supports habitat connectivity, fauna movement and important hydrological and ecological functions.

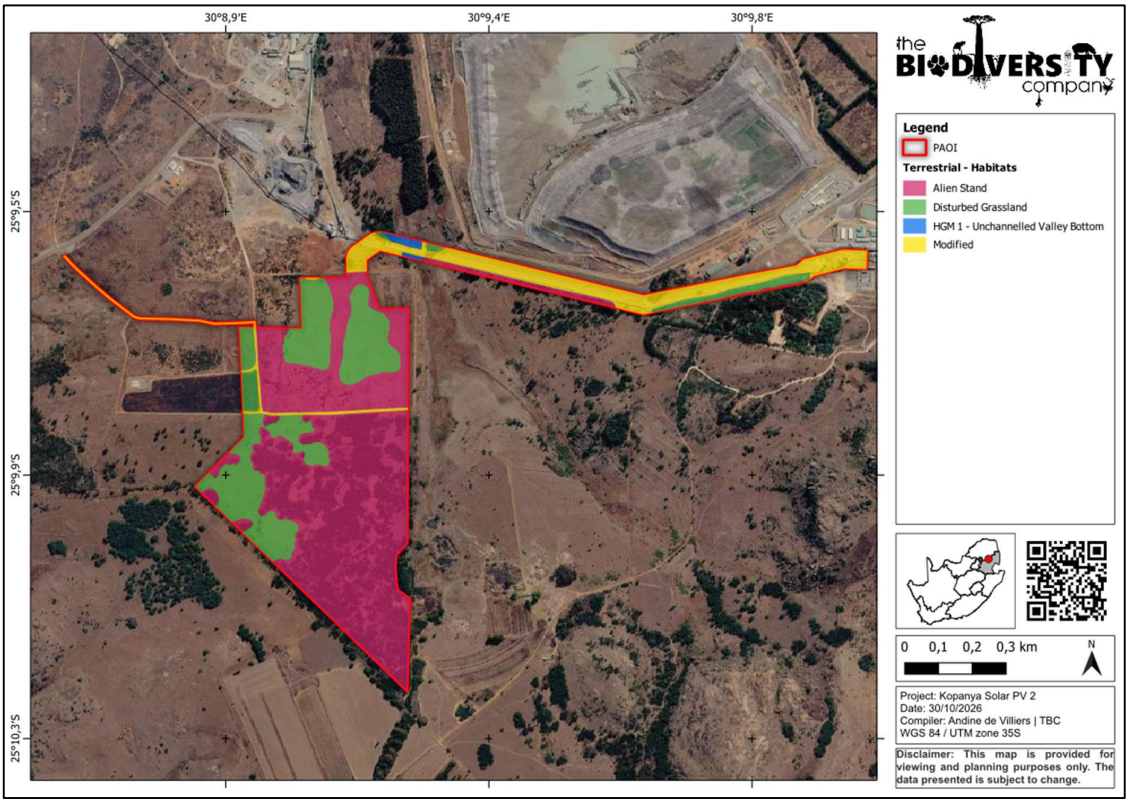


Figure 11-12: Terrestrial Habitat Types within the Project Area of Influence (The Biodiversity Company, 2026b)

Although the existing disturbance has reduced the ecological integrity of substantial portions of the PAOI, the remaining grassland and water-related habitats continue to contribute to biodiversity and ecological functioning. The specialist identified Water Resources as particularly important for maintaining ecological connectivity, while Disturbed Grassland provides habitat for indigenous vegetation and fauna despite its modified condition (The Biodiversity Company, 2026b).

11.5.2.3 Plant Species

The field survey, undertaken between 26 and 30 January 2026, recorded 42 plant species within the PAOI, comprising 33 indigenous species and nine alien invasive plant species. Indigenous vegetation was primarily associated with the remaining Disturbed Grassland habitat, while heavily invaded areas supported limited indigenous vegetation. The specialist noted that the recorded species do not represent a complete inventory of all flora potentially occurring within the PAOI, as detection and identification were subject to the timing and duration of the field survey (The Biodiversity Company, 2026b).

No, nationally or provincially protected or threatened plant species were recorded during the field investigation. The desktop assessment nevertheless considered plant SCC potentially occurring within the broader landscape, including species associated with montane grassland and other suitable habitats. The absence of confirmed records must therefore be considered together with the

habitat conditions and limitations of the field investigation (The Biodiversity Company, 2026b).

Alien invasive vegetation represents a significant component of the existing vegetation condition. Species recorded included *Acacia species* (Wattles), *Datura stramonium* (Thorn Apple), *Salvia tiliifolia* (Lindenleaf Sage) and *Solanum mauritianum* (Bugweed). These species have contributed to the displacement of indigenous vegetation and changes in habitat structure, ecological functioning and water use. The specialist identified alien plant infestation as an important factor contributing to the reduced ecological integrity of portions of the PAOI (The Biodiversity Company, 2026b).

11.5.2.4 Animal Species

The terrestrial fauna assessment considered non-avian mammals, reptiles and amphibians through desktop research, habitat assessment and field observations. Six common mammal species were recorded during the survey, including *Hystrix africaeaustralis* (Cape Porcupine), *Lepus saxatilis* (Scrub Hare) and *Phacochoerus africanus* (Common Warthog). No amphibians or reptiles were observed during the field investigation, although suitable habitat for certain common species was identified within the broader PAOI (The Biodiversity Company, 2026b).

No threatened or protected non-avian animal species were confirmed during the field survey. However, the specialist recognised that some SCC may occasionally utilise suitable habitats for movement or foraging, particularly those associated with Water Resources and remaining grassland vegetation. These habitats therefore retain ecological importance despite the absence of confirmed threatened species records, particularly in maintaining habitat connectivity and supporting fauna within the surrounding landscape. Avifauna is addressed separately in the Avifaunal Assessment (The Biodiversity Company, 2026b).

11.5.3 Key Specialist Findings and Conclusions

The Biodiversity Company (2026b) concluded that the ecological sensitivity of the PAOI varies from Very Low to High, reflecting differences in habitat condition, ecological functionality and conservation importance. Modified areas and Alien Stands were assigned the lowest sensitivities, while Disturbed Grassland retains moderate ecological importance. Water Resources were identified as the most sensitive habitats owing to their ecological functions and contribution to habitat connectivity. These findings provide a site-specific basis for identifying ecological constraints and informing the detailed layout of the proposed Project.

The specialist determined that Modified areas and Alien Stands are generally more suitable for development than the remaining Disturbed Grassland and Water Resources. Development within Disturbed Grassland should preferably be avoided where lower-sensitivity alternatives are available, while the management and protection of Water Resources must be informed by the separate Wetland Assessment. The verified SEI classifications and associated development considerations are summarised in **Table 11-8** (The Biodiversity Company, 2026b).

Table 11-8: Summary of Specialist Findings and Habitat Development Considerations (The Biodiversity Company, 2026b)

Habitat Type	Verified Site Ecological Importance	Specialist Development Considerations
Modified areas	Very Low	Development of medium to high impact may be accommodated, subject to appropriate rehabilitation.
Alien Stands	Low	Development of medium to high impact may be accommodated, subject to appropriate management and rehabilitation.
Disturbed Grassland	Medium	Development should preferably be avoided where lower-sensitivity alternatives are available. Where unavoidable, medium-impact development may be considered with appropriate rehabilitation.
Water Resources	High	Development must be guided by the separate Wetland Assessment, including applicable avoidance requirements and buffers.

The specialist recommended that the detailed layout prioritise previously Modified areas and Alien Stands, with Disturbed Grassland considered only where lower-sensitivity areas have been prioritised and no practical alternatives are available. Particular consideration must be given to the positioning of infrastructure in relation to Water Resources and associated ecological corridors. The specialist further identified the need for appropriate management of alien invasive vegetation, rehabilitation of disturbed areas and pre-construction ecological verification to confirm the presence of any protected species or other sensitive ecological (The Biodiversity Company, 2026b).

The Biodiversity Company (2026b) concluded that the proposed Project may be considered acceptable from a terrestrial biodiversity perspective, provided that the identified ecological sensitivities are incorporated into detailed layout planning and the recommended avoidance and management measures are implemented. The specialist findings indicate that development should be directed towards lower-sensitivity habitats, while the ecological functionality of remaining grassland and water-related habitats should be maintained as far as practicable.

11.6 Avifauna

The Avifauna Assessment undertaken by The Biodiversity Company (2026c) evaluated the avifaunal characteristics and ecological sensitivity of the proposed Project area and associated infrastructure at BS Mine. The assessment comprised a desktop review of relevant biodiversity datasets and seasonal field surveys undertaken between 26 and 30 January 2026 and 20 and 22 April 2026. The investigation considered avifaunal species diversity, habitat suitability, the occurrence of SCC, flight activity, nesting opportunities and the potential sensitivity of birds to the proposed PV facility and associated infrastructure.

11.6.1 Screening Tool and Site Sensitivity Verification Outcomes

The Screening Tool assigned High sensitivity to the Avian Theme. The specialist verified this classification against the ecological condition of the PAOI, the avifaunal species recorded during field surveys and the availability of suitable habitats. The assessment identified four habitat types, namely Modified areas, Alien Stands, Disturbed Grassland and Water Resources. These habitats differ in their ecological condition, habitat suitability and importance for avifaunal species (The Biodiversity Company, 2026c).

The SSV established that the Screening Tool's High sensitivity classification does not accurately represent the ecological condition of all habitats within the PAOI. Modified areas were assigned Very Low Site Ecological Importance (SEI), Alien Stands Low SEI and Disturbed Grassland Medium SEI. Water Resources were assigned High SEI, reflecting their importance for water-associated birds, habitat connectivity and the provision of ecological resources. The verified sensitivities therefore range from Very Low to High (The Biodiversity Company, 2026c).

The comparison between the Screening Tool classification and verified avifaunal sensitivities is summarised in **Table 11-9**.

Table 11-9: Avifaunal Site Sensitivity Verification Outcomes (The Biodiversity Company, 2026c)

Screening Tool Theme / Habitat	Screening Tool Sensitivity	Verified Sensitivity	Outcome
Avian – Modified areas	High	Very Low	Disputed
Avian – Alien Stands	High	Low	Disputed
Avian – Disturbed Grassland	High	Medium	Disputed
Avian – Water Resources	High	High	Validated

The specialist's sensitivity verification was informed by the identification of 119 bird species during the seasonal field surveys, including five SCC. Although much of the PAOI has been affected by mining-related disturbance and alien invasive vegetation, the occurrence of SCC and the continued ecological functionality of remaining grassland and water-related habitats confirm that certain areas retain avifaunal conservation importance. The verified sensitivity classifications consequently provide a more representative basis for identifying avifaunal constraints within the proposed Project area (The Biodiversity Company, 2026c).

The distribution of the identified avifaunal habitats and their verified SEI is illustrated in **Figure 11-13** and **Figure 11-14.**

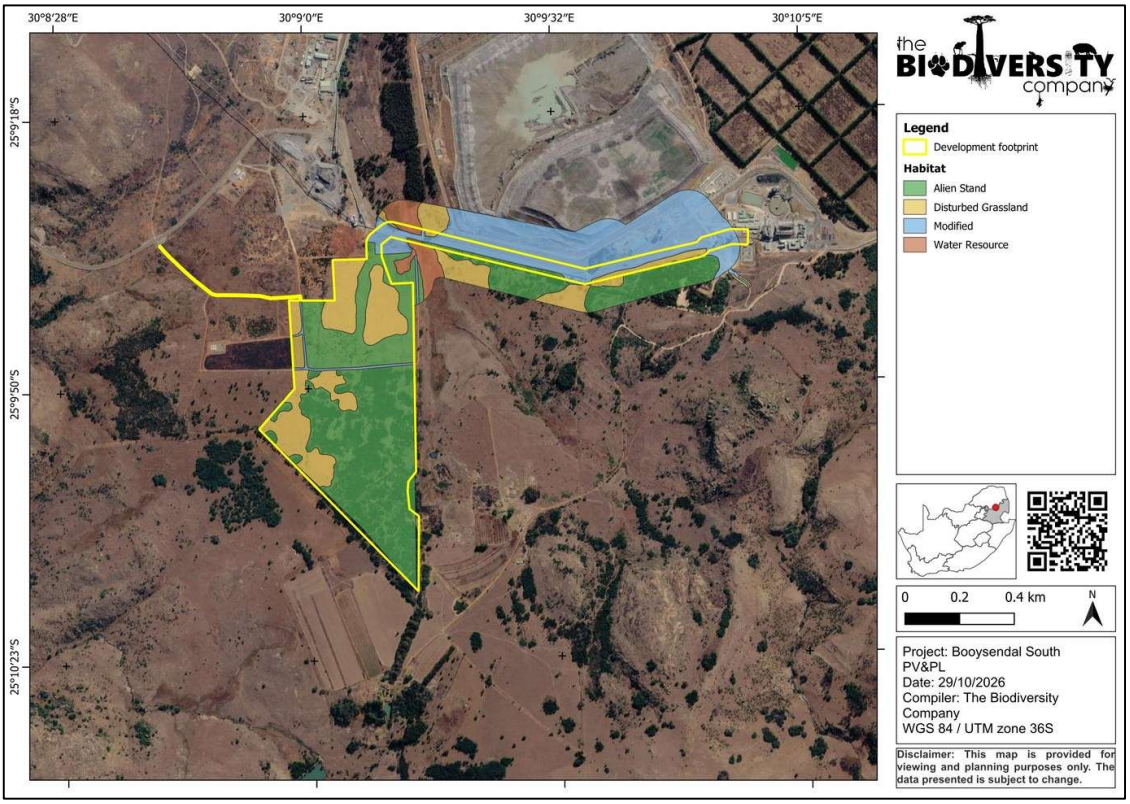


Figure 11-13: Avifaunal Habitat Types within the Proposed Project area (The Biodiversity Company, 2026c)

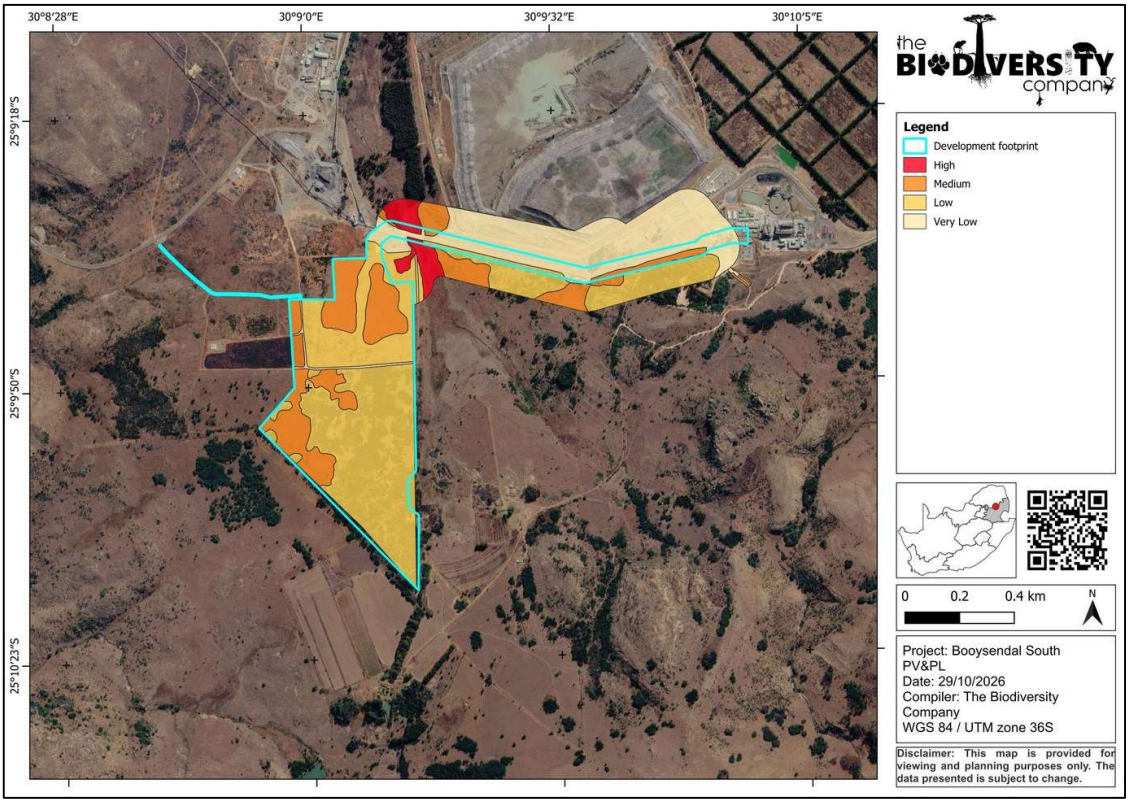


Figure 11-14: Verified Avifaunal Site Ecological Importance (The Biodiversity Company, 2026c)

Overall, the SSV established that the proposed Project area comprises habitats of varying avifaunal sensitivity, with Modified areas and Alien Stands representing the least sensitive habitats and Water Resources representing the most sensitive. The specialist concluded that development should preferentially be directed towards lower-sensitivity habitats, while remaining grassland and water-related habitats require greater consideration during detailed layout planning (The Biodiversity Company, 2026c).

11.6.2 Baseline Avifaunal Conditions

11.6.2.1 Avifaunal Landscape Context

The proposed Project is situated within a landscape of recognised biodiversity importance, overlapping with the Sekhukhune Montane Grassland vegetation type, Mpumalanga Intact Grasslands and the Steelpoort Key Biodiversity Area. The broader landscape provides a combination of grassland, water-related habitats and modified environments capable of supporting a range of avifaunal species. However, the ecological condition of the PAOI has been influenced by historical and ongoing mining activities, roads, electrical infrastructure and the establishment of alien invasive vegetation, resulting in varying degrees of habitat transformation and fragmentation (The Biodiversity Company, 2026c)

The specialist considered relevant national and provincial biodiversity planning datasets, including ecosystem threat status, ecosystem protection levels, protected areas, protected area expansion priorities and Key Biodiversity Areas. These features are described in Section 11.5.2.1 and are not repeated here. From an avifaunal perspective, the importance of the broader landscape relates to the availability of remaining grassland, suitable foraging areas, water-related habitats and potential movement corridors for resident and mobile bird (The Biodiversity Company, 2026c).

The assessment also considered information from the Coordinated Avifaunal Roadcount (CAR) programme, which monitors selected large terrestrial bird species. The nearest identified CAR route is approximately 3.3 km from the PAOI. This information formed part of the broader desktop assessment of potential avifaunal occurrence and sensitivity (The Biodiversity Company, 2026c).

11.6.2.2 Avifaunal Species Diversity and Composition

The seasonal field surveys recorded 119 bird species within and around the proposed Project area, representing a diversity of avifaunal communities associated with grassland, modified vegetation, wooded habitats and Water Resources. The surveys included observations across the habitat types, with particular attention given to habitats considered suitable for SCC and species potentially vulnerable to renewable energy infrastructure (The Biodiversity Company, 2026c).

Five SCC were recorded during the assessment, namely *Podica senegalensis* (African Finfoot), *Gyps coprotheres* (Cape Vulture), *Promerops gurneyi* (Gurney's Sugarbird), *Alcedo semitorquata* (Half-collared Kingfisher) and *Aquila rapax* (Tawny Eagle). These species have differing habitat requirements and conservation statuses, reflecting the ecological diversity of the surrounding landscape and the importance of considering both habitat loss and infrastructure-related risks (The

Biodiversity Company, 2026c).

The SCC recorded during the field surveys and their reported conservation statuses are summarised in **Table 11-20**.

Table 11-10: Avifaunal Species of Conservation Concern Recorded During the Field Surveys (The Biodiversity Company, 2026c)

Scientific Name	Common Name	Regional Conservation Status	Global Conservation Status
Podica senegalensis	African Finfoot	Vulnerable	Least Concern
Gyps coprotheres	Cape Vulture	Vulnerable	Vulnerable
Promerops gurneyi	Gurney's Sugarbird	Least Concern	Near Threatened
Alcedo semitorquata	Half-collared Kingfisher	Vulnerable	Least Concern
Aquila rapax	Tawny Eagle	Endangered	Vulnerable

In addition to the five SCC, the specialist identified 16 recorded species as priority species potentially vulnerable to impacts associated with energy infrastructure. These included raptors, waterbirds and other species susceptible to habitat loss, collisions with overhead power lines or electrocution. The presence of these species highlights the importance of considering the proposed Project's associated electrical infrastructure, in addition to the PV development footprint (The Biodiversity Company, 2026c).

The most abundant species recorded during standardised point counts was *Pycnonotus tricolor* (Dark-capped Bulbul), with a relative abundance of approximately 9.6% and a frequency of occurrence of 53.8%. Other commonly recorded species included *Estrilda astrild* (Common Waxbill), *Laniarius ferrugineus* (Southern Boubou), *Zosterops virens* (Cape White-eye) and *Prinia subflava* (Tawny-flanked Prinia). The recorded assemblage included a substantial proportion of insectivorous species, together with seed-eating and other feeding groups, indicating the availability of a range of ecological resources within the PAOI (The Biodiversity Company, 2026c).

11.6.2.3 Avifaunal Habitats

Four avifaunal habitat types were identified within the PAOI, namely Modified areas, Alien Stands, Disturbed Grassland and Water Resources. The distribution of these habitats reflects the influence of existing land uses, vegetation condition and the availability of ecological resources. Although the majority of the assessed area comprises modified or alien-invaded habitats, the remaining grassland and water-related environments continue to support avifaunal diversity and provide important foraging, refuge and movement opportunities (The Biodiversity Company, 2026c).

Modified areas comprise land substantially altered by mining activities and associated infrastructure, with limited remaining natural vegetation and reduced habitat suitability. Alien Stands are characterised by extensive alien invasive vegetation, which has altered the natural vegetation structure and reduced the availability of indigenous grassland habitat. Disturbed Grassland retains some indigenous vegetation and supports grassland-associated avifauna, although its ecological condition has been affected by grazing, alien invasive vegetation and surrounding land uses (The Biodiversity Company, 2026c).

Water Resources include an unchannelled valley-bottom wetland and seep habitat, identified as Hydrogeomorphic Units (HGM) HGM 1 and HGM 2 in the specialist assessment. These habitats provide important ecological resources for water-associated birds and contribute to avifaunal movement and connectivity within the broader landscape. Their continued ecological functionality is particularly relevant to species associated with aquatic and riparian environments, including SCC recorded during the field surveys (The Biodiversity Company, 2026c).

The avifaunal habitat characteristics are summarised in **Table 11-11**.

Table 11-11: Summary of Avifaunal Habitat Types (The Biodiversity Company, 2026c)

Habitat Type	Description	Avifaunal Importance
Modified areas	Areas substantially transformed by mining and associated infrastructure, with limited natural vegetation remaining.	Limited habitat suitability, primarily supporting common and disturbance-tolerant bird species.
Alien Stands	Areas extensively invaded by alien vegetation, resulting in altered vegetation structure and reduced indigenous habitat.	Provides habitat for certain generalist species but has reduced value for grassland-associated avifauna.
Disturbed Grassland	Grassland affected by grazing, alien invasive vegetation and surrounding land uses, but retaining indigenous vegetation.	Provides foraging and movement habitat for grassland-associated species and contributes to avifaunal diversity.
Water Resources	Wetland and seep habitats associated with HGM 1 and HGM 2.	Provides habitat and ecological resources for water-associated birds, including Species of Conservation Concern, and contributes to habitat connectivity.

The specialist identified Water Resources as the most sensitive avifaunal habitat, followed by Disturbed Grassland. Modified areas and Alien Stands were considered less sensitive because of their altered ecological condition and reduced habitat suitability. These differences in habitat importance are reflected in the verified SEI mapping presented in **Figure 11-14** (The Biodiversity Company, 2026c).

11.6.2.4 Flight Activity and Nesting

The avifaunal assessment included observations of bird flight activity and a survey for nesting sites within the assessed area. Flight observations were undertaken to obtain an indication of bird movement patterns and potential interactions with proposed infrastructure, particularly overhead power lines. The specialist noted that the flight analysis was limited in duration and should therefore be interpreted cautiously, as it does not provide a comprehensive characterisation of seasonal or longer-term flight movements (The Biodiversity Company, 2026c).

No nests were recorded during the January and April 2026 field surveys. However, the absence of observed nests does not exclude the possibility of future nesting activity, particularly within remaining suitable habitats. The potential for nesting and movement by sensitive species remains relevant to the detailed positioning of infrastructure and the management of construction activities (The Biodiversity Company, 2026c).

11.6.3 Key Specialist Findings and Conclusions

The Biodiversity Company (2026c) concluded that the avifaunal sensitivity of the PAOI varies from

Very Low to High, reflecting differences in habitat condition, suitability for SCC and ecological functionality. Modified areas and Alien Stands were assigned the lowest sensitivities, while Disturbed Grassland retains moderate avifaunal importance. Water Resources were identified as the most sensitive habitats, owing to their importance for water-associated species and their contribution to habitat connectivity. These findings provide the basis for identifying avifaunal constraints and informing the detailed layout of the proposed Project.

The specialist determined that Modified areas and Alien Stands are generally more suitable for development than Disturbed Grassland and Water Resources. The verified SEI classifications and associated development considerations are summarised in **Table 11-12**.

Table 11-12: Summary of Avifaunal Specialist Findings and Habitat Development Considerations (The Biodiversity Company, 2026c)

Habitat Type	Verified Site Ecological Importance	Specialist Development Considerations
Modified areas	Very Low	Development of medium to high impact may be accommodated, subject to appropriate management measures.
Alien Stands	Low	Development of medium to high impact may be accommodated, followed by appropriate rehabilitation.
Disturbed Grassland	Medium	Development should preferably be directed towards lower-sensitivity habitats. Where unavoidable, medium-impact development may be considered with appropriate rehabilitation.
Water Resources	High	Development should be avoided, with applicable buffers and management requirements informed by the separate Wetland Assessment.

The specialist identified a particular concern regarding the preliminary access road and overhead power line corridor, which overlap approximately 0.29 ha of High SEI Water Resource habitat. The assessment recommends that this overlap be avoided through layout refinement, with the positioning of infrastructure informed by the applicable wetland delineation, buffers and specialist recommendations. This represents an important constraint requiring resolution during detailed design (The Biodiversity Company, 2026c).

The assessment identified potential avifaunal impacts associated with vegetation clearance, habitat loss and fragmentation, displacement of birds and disturbance during construction. Additional risks associated with the operational phase include collisions with overhead power lines and other infrastructure, electrocution, fencing-related injuries and mortality, and disturbance arising from vehicle movements and maintenance activities. The specialist also considered potential effects associated with shallow blasting, access roads, perimeter fencing and conservancy tanks included in the preliminary development layout. The final assessment of these activities remains dependent on confirmation of their location, extent and operational requirements (The Biodiversity Company, 2026c).

The specialist recommended that development be prioritised within areas of Very Low and Low SEI, with disturbance to remaining grassland and Water Resources avoided or minimised. Additional recommendations include pre-construction ecological walkdowns, identification and monitoring of active nests before and during any blasting, appropriate design of electrical infrastructure to reduce

collision and electrocution risks, management of alien invasive vegetation and rehabilitation of disturbed areas. The assessment further recommends annual avifaunal monitoring, with seasonal rotation, during construction and the first three years of operation, supported by adaptive management where monitoring identifies unacceptable avifaunal mortality or other impacts (The Biodiversity Company, 2026c).

The Biodiversity Company (2026c) concluded that the proposed Project may be considered acceptable from an avifaunal perspective, subject to implementation of the prescribed avoidance, mitigation and monitoring measures. The specialist recommended that the assessment be reviewed once the preliminary layout and associated activities have been finalised, particularly in relation to the High SEI Water Resource overlap and the positioning of infrastructure presenting potential collision or electrocution risks. The findings indicate that the proposed Project should preferentially utilise lower-sensitivity habitats while maintaining the ecological functionality of remaining grassland and water-related habitats.

11.7 Aquatic Biodiversity

The Biodiversity Company (2026d) undertook a Wetland Functional and Impact Assessment for the proposed Kopanya Solar PV 2 Project to identify and delineate watercourses, assess their ecological condition and functionality, verify aquatic biodiversity sensitivity, and evaluate potential impacts associated with the proposed development. The assessment considered the proposed Project area and a surrounding 500 m PAOI, with particular attention to wetlands and drainage features that could be affected by the construction, operation and decommissioning of the proposed Project.

11.7.1 Screening Tool and Site Sensitivity Verification Outcomes

The Screening Tool classified the proposed Project area as having Very High Aquatic Biodiversity sensitivity. This classification was attributed to the presence of Ecological Support Areas (ESAs), including important sub-catchments and wetlands, valley-bottom wetland habitat and Freshwater Ecosystem Priority Area (FEPA) sub-catchments. The Screening Tool classification reflects the potential ecological importance of aquatic features within the broader landscape but does not distinguish between the ecological condition and sensitivity of individual watercourses and modified areas (The Biodiversity Company, 2026d).

The SSV undertaken by the specialist included a review of relevant aquatic biodiversity datasets, field delineation of wetlands and drainage features, and an assessment of wetland ecological condition and importance. The specialist identified four wetland hydrogeomorphic (HGM) units, three non-perennial drainage lines and artificial wet areas associated with existing mining activities. The findings were used to refine the Screening Tool classification and assign site-specific sensitivity ratings to the identified aquatic features and surrounding areas (The Biodiversity Company, 2026d).

The specialist verified High sensitivity for the unchannelled valley-bottom wetland (HGM 1) and channelled valley-bottom wetland (HGM 4), Medium sensitivity for the seep wetlands (HGM 2 and HGM 3), non-perennial drainage lines and watercourse buffer zones, and Low sensitivity for artificial

wet areas and the remaining terrestrial areas. The verified sensitivities therefore range from Low to High, rather than the uniform Very High sensitivity identified by the Screening Tool (The Biodiversity Company, 2026d).

The comparison between the Screening Tool classification and the specialist verified sensitivities is presented in **Table 11-13**.

Table 11-13: Aquatic Biodiversity Site Sensitivity Verification Outcomes (The Biodiversity Company, 2026d)

Aquatic Feature / Area	Screening Tool Sensitivity	Verified Sensitivity	SSV Outcome
Unchannelled valley-bottom wetland (HGM 1)	Very High	High	Disputed
Seep wetlands (HGM 2 and HGM 3)	Very High	Medium	Disputed
Channelled valley-bottom wetland (HGM 4)	Very High	High	Disputed
Non-perennial drainage lines	Very High	Medium	Disputed
Watercourse buffer zones	Very High	Medium	Disputed
Artificial wet areas and remaining areas	Very High	Low	Disputed

The specialist concluded that the verified sensitivity classifications provide a more representative indication of aquatic biodiversity constraints within the PAOI, distinguishing between natural wetlands that retain ecological importance and areas that have been substantially modified by existing land uses. The High and Medium sensitivity areas require particular consideration during layout planning and implementation of the proposed Project, while the Low sensitivity areas present fewer aquatic biodiversity constraints (The Biodiversity Company, 2026d).

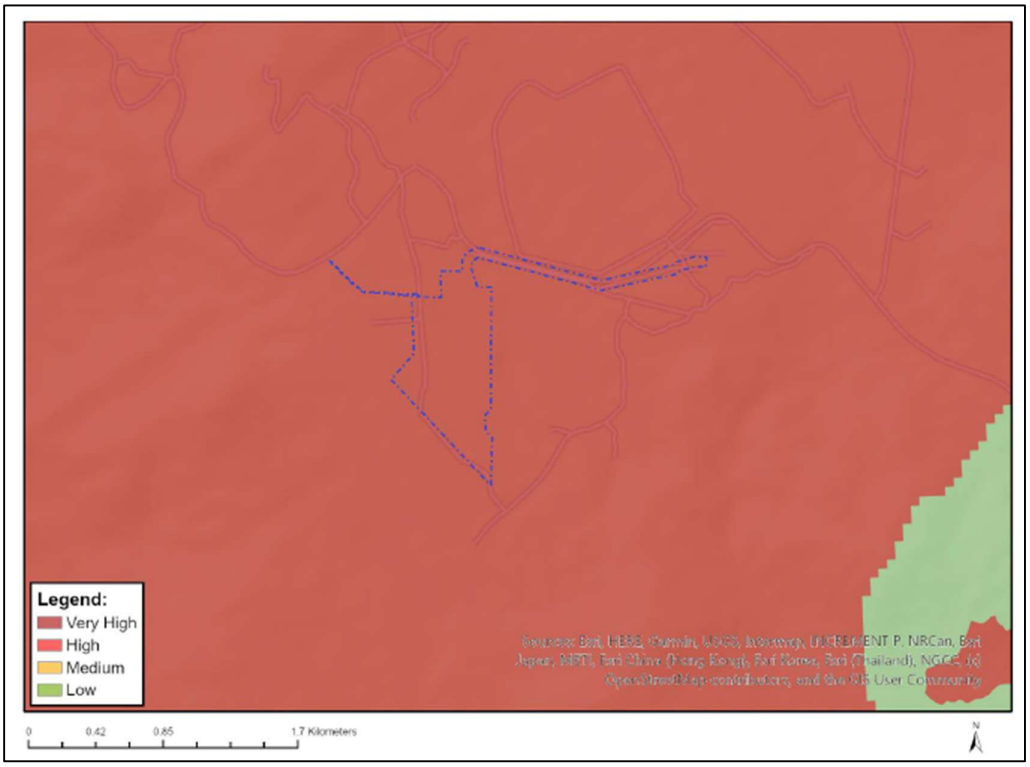


Figure 11-15: Aquatic Biodiversity Theme Sensitivity Identified by the Screening Tool (The Biodiversity Company, 2026d)

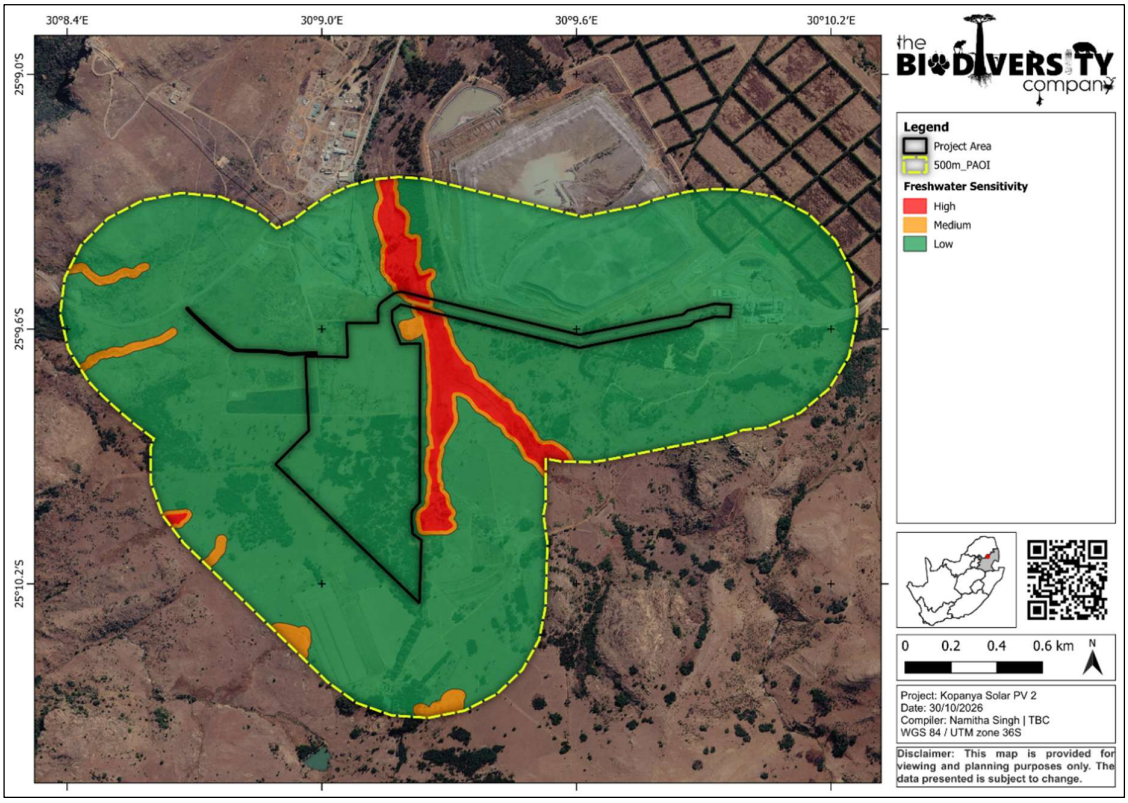


Figure 11-16: Specialist Verified Freshwater Sensitivity within the Project Area of Influence (The Biodiversity Company, 2026d)

11.7.2 Baseline Aquatic Environment and Wetland Conditions

11.7.2.1 Hydrological and Aquatic Biodiversity Setting

The proposed Project is situated within the existing BS Mine, in a landscape characterised by mountainous terrain, natural drainage features and areas modified by mining and associated infrastructure. The aquatic environment comprises valley-bottom wetlands, seep wetlands and non-perennial drainage lines that receive water from surface runoff, subsurface flows and local catchment processes. These features contribute to water movement, sediment retention, water quality regulation and biodiversity support within the surrounding catchment (The Biodiversity Company, 2026d).

The specialist considered relevant national and provincial aquatic biodiversity datasets, including the South African Inventory of Inland Aquatic Ecosystems, FEPA and Mpumalanga Biodiversity Spatial Plan. The desktop assessment identified aquatic features and biodiversity planning priorities within the PAOI, which were subsequently verified and refined through field investigations. The findings confirmed the presence of natural wetlands and drainage features, together with artificial wet areas associated with mining operations (The Biodiversity Company, 2026d).

11.7.2.2 Wetland Delineation and Classification

The field assessment identified four natural wetland HGM units within the PAOI, comprising one

unchannelled valley-bottom wetland (HGM 1), two seep wetlands (HGM 2 and HGM 3) and one channelled valley-bottom wetland (HGM 4). Three non-perennial drainage lines and artificial wet areas associated with mining activities were also identified. The delineation and classification of these features were undertaken in accordance with recognised wetland identification and classification methods (The Biodiversity Company, 2026d).

The unchannelled valley-bottom wetland (HGM 1) is located within a valley-bottom setting and is characterised by diffuse water movement without a distinct stream channel. This wetland contains an instream dam and receives water through surface and subsurface flows. The seep wetlands (HGM 2 and HGM 3) occur on sloping terrain and are primarily associated with the downslope movement of subsurface water. The channelled valley-bottom wetland (HGM 4) is associated with a defined drainage channel and receives water from channel flow and adjacent slopes (The Biodiversity Company, 2026d).

The non-perennial drainage lines were classified as A-section channels, which convey runoff following rainfall events and are not associated with sustained baseflow. The artificial wet areas are associated with existing mining activities and are distinguished from the naturally occurring wetland systems. Of the four natural wetlands, only HGM 1 and HGM 2 were identified as potentially at risk from the proposed Project and were therefore subjected to further functional and ecological assessment (The Biodiversity Company, 2026d).

The identified aquatic features are summarised in **Table 11-14**.

Table 11-14: Aquatic Features Identified within the Project Area of Influence (The Biodiversity Company, 2026d)

Aquatic Feature	Classification	Description
HGM 1	Unchannelled valley-bottom wetland	Valley-bottom wetland with diffuse water movement and an existing instream dam.
HGM 2	Seep wetland	Wetland associated with subsurface water movement on sloping terrain.
HGM 3	Seep wetland	Seep wetland within the broader Project Area of Influence, not identified as being at risk from the proposed Project.
HGM 4	Channelled valley-bottom wetland	Valley-bottom wetland associated with a defined drainage channel, not identified as being at risk from the proposed Project.
Non-perennial drainage lines	A-section drainage channels	Three drainage features conveying surface runoff following rainfall events, without sustained baseflow.
Artificial wet areas	Artificial aquatic features	Wet areas associated with existing mining operations.

The distribution of the delineated watercourses and wetland systems within the PAOI is illustrated in **Figure 11-17**.

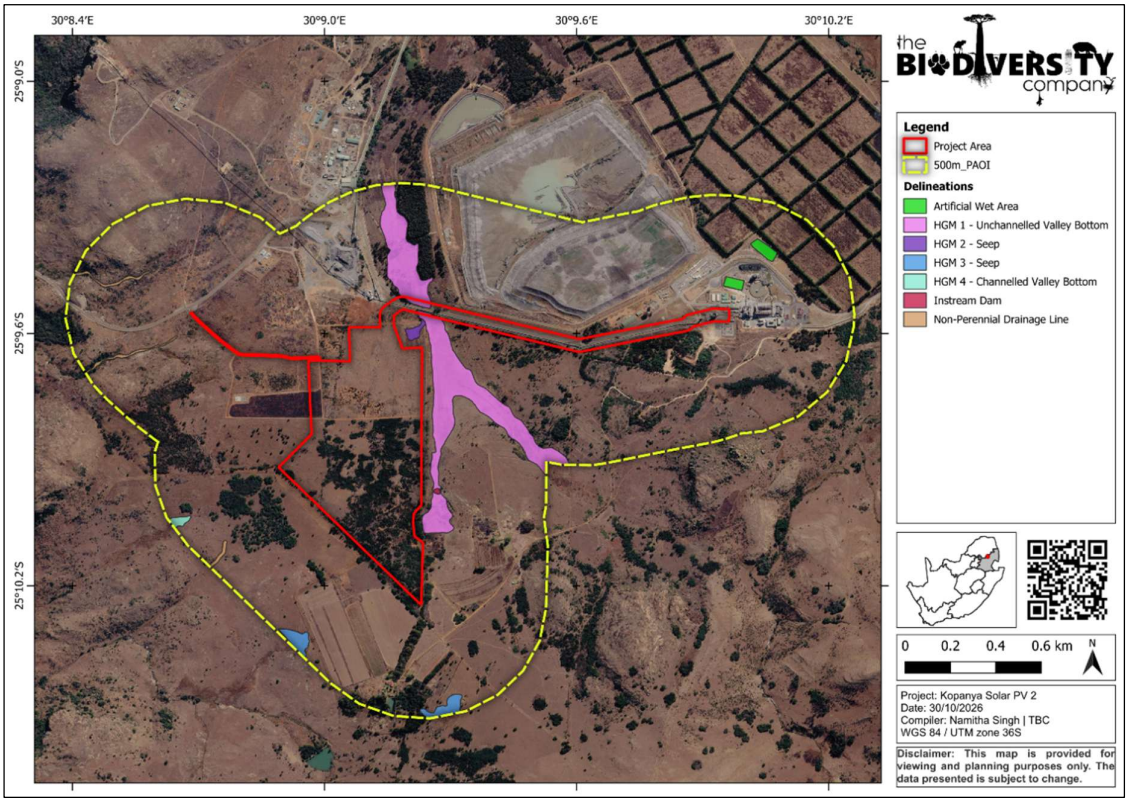


Figure 11-17: Delineation of Watercourses within the Project Area of Influence (The Biodiversity Company, 2026d)

11.7.2.3 Wetland Functionality and Ecosystem Services

The functional assessment focused on HGM 1 and HGM 2, which were identified as the wetlands potentially at risk from the proposed Project. The assessment was undertaken using the WET-EcoServices methodology to evaluate the ecological services provided by these systems, including flood attenuation, streamflow regulation, sediment trapping, water quality enhancement and biodiversity maintenance (The Biodiversity Company, 2026d).

The assessed wetlands provide ecosystem services ranging from Moderately Low to Intermediate levels. HGM 1 contributes to sediment retention, flood attenuation, streamflow regulation and water quality enhancement through its valley-bottom position and diffuse water movement. HGM 2 provides water quality regulation and contributes to the retention of nutrients and pollutants, although its functional capacity has been reduced by its limited extent and historical land transformation (The Biodiversity Company, 2026d).

Despite their modified condition, both wetlands continue to provide ecological services within the local catchment. Their remaining functionality is therefore relevant to the management of runoff, erosion, sedimentation and potential water quality impacts associated with the proposed Project (The Biodiversity Company, 2026d).

11.7.2.4 Present Ecological State and Ecological Importance and Sensitivity

The Present Ecological State (PES) assessment indicated that the wetlands potentially affected by the proposed Project have experienced ecological modification resulting from historical and ongoing disturbances within their catchments. The assessed wetlands were classified within PES Categories D (Largely Modified) and E (Seriously Modified), reflecting alterations to their natural hydrological, geomorphological and ecological characteristics (The Biodiversity Company, 2026d).

The specialist identified several existing pressures affecting wetland condition, including changes to runoff patterns associated with roads and crossings, water quality impairment from catchment runoff, the proliferation of alien invasive vegetation and erosion resulting from altered hydrological and geomorphological processes. These disturbances have reduced the ecological integrity of the wetlands but have not eliminated their remaining ecological functions (The Biodiversity Company, 2026d).

The Ecological Importance and Sensitivity (EIS) assessment classified the assessed wetlands within Categories B (High) and C (Moderate). These classifications indicate that, notwithstanding their modified ecological condition, the wetlands retain ecological importance and require appropriate protection and management. The specialist also considered the Recommended Ecological Category (REC) and Recommended Management Objectives (RMO) to inform the protection and management requirements for these features (The Biodiversity Company, 2026d).

The results of the wetland ecological assessment are summarised in **Table 11-15**.

Table 11-15: Summary of Wetland Ecological Condition and Functionality (The Biodiversity Company, 2026d)

Assessment Attribute	HGM 1 - Unchannelled Valley-Bottom Wetland	HGM 2 - Seep Wetland
Present Ecological State (PES)	D – Largely Modified	E – Seriously Modified
Ecosystem Service Score	Intermediate	Moderately Low
Ecological Importance and Sensitivity (EIS)	B – High	C – Moderate
Recommended Ecological Category (REC)	C/D	E/F
Recommended Management Objective (RMO)	Improve	Maintain

The assessment demonstrates that HGM 1 retains relatively greater ecological importance and functionality than HGM 2, despite its modified condition. The recommended management objective for HGM 1 is to improve its ecological condition, while the objective for HGM 2 is to maintain its current ecological condition. These objectives inform the protection, rehabilitation and management measures required to prevent further degradation of the wetland systems (The Biodiversity Company, 2026d).

11.7.3 Key Specialist Findings and Conclusions

The Biodiversity Company (2026d) concluded that the proposed Project is located within a landscape containing natural wetlands and drainage features of varying ecological condition and sensitivity. Although the wetlands have been affected by historical and ongoing land use activities, they

continue to provide important ecosystem services and contribute to the hydrological functioning of the surrounding catchment. The specialist identified HGM 1 and HGM 2 as the wetlands potentially affected by the proposed Project, while HGM 3, HGM 4 and the non-perennial drainage lines were not considered to be at risk based on their location relative to the proposed activities.

The specialist calculated post-mitigation buffer requirements of 20 m for wetlands and 15 m for non-perennial drainage lines, based on the site-specific assessment and implementation of the prescribed mitigation measures. The proposed infrastructure generally avoids these buffers, with the exception of the electrical grid infrastructure (EGI), which intersects HGM 1 in the vicinity of an existing road crossing. The specialist considered this intersection acceptable because the power line alignment follows an existing disturbed corridor, thereby minimising additional disturbance to the wetland (The Biodiversity Company, 2026d).

The specialist identified potential impacts associated with vegetation clearance, earthworks, road establishment, construction activities and the installation of electrical infrastructure. These activities could increase erosion, sedimentation and turbidity, alter natural runoff patterns, disturb wetland vegetation and introduce pollutants through accidental spills or leaks. During operation, potential impacts relate primarily to stormwater runoff, erosion, water quality deterioration, wastewater management and the spread of alien invasive vegetation. Similar disturbance-related impacts could arise during decommissioning if rehabilitation and waste management are not appropriately implemented (The Biodiversity Company, 2026d).

The DWS Risk Assessment Matrix (RAM) was applied to evaluate the potential risks to HGM 1 and HGM 2 during construction, operation and decommissioning. The assessment concluded that all identified risks would fall within the Low post-mitigation risk category, provided that the prescribed buffers are maintained and the recommended mitigation measures are implemented. The specialist also considered cumulative impacts associated with sedimentation, altered runoff, erosion, vegetation loss and water quality pressures within the surrounding catchment, concluding that these could be maintained at Low significance through appropriate avoidance and management (The Biodiversity Company, 2026d).

The key specialist recommendations include maintaining the prescribed wetland and drainage line buffers, restricting construction activities to authorised areas, preventing unnecessary vegetation clearance and implementing appropriate stormwater and erosion control measures. The specialist further recommended measures to prevent sediment-laden runoff and contaminated water from entering wetlands, appropriate storage and handling of hazardous substances, control of alien invasive vegetation and rehabilitation of disturbed areas. The natural hydrological connectivity and ecological functionality of the identified wetlands must be maintained throughout the lifecycle of the proposed Project (The Biodiversity Company, 2026d).

The specialist confirmed that the proposed Project occurs within the regulated zones of identified watercourses and that the applicable water use authorisation requirements under the NWA, must be addressed. The Low risk findings of the RAM provide a basis for determining the appropriate

authorisation route for potential Section 21(c) and Section 21(i) water uses, subject to the requirements of Government Notice 4167 of 2023 and confirmation by the DWS.

Based on the assessment findings and the assumption that the prescribed mitigation measures will be implemented, The Biodiversity Company (2026d) identified no fatal flaws associated with the proposed Project from a wetland and aquatic biodiversity perspective. The specialist concluded that the proposed Project may be favourably considered for authorisation, subject to protection of the identified watercourses, adherence to the prescribed buffers and implementation of the recommended mitigation and management measures.

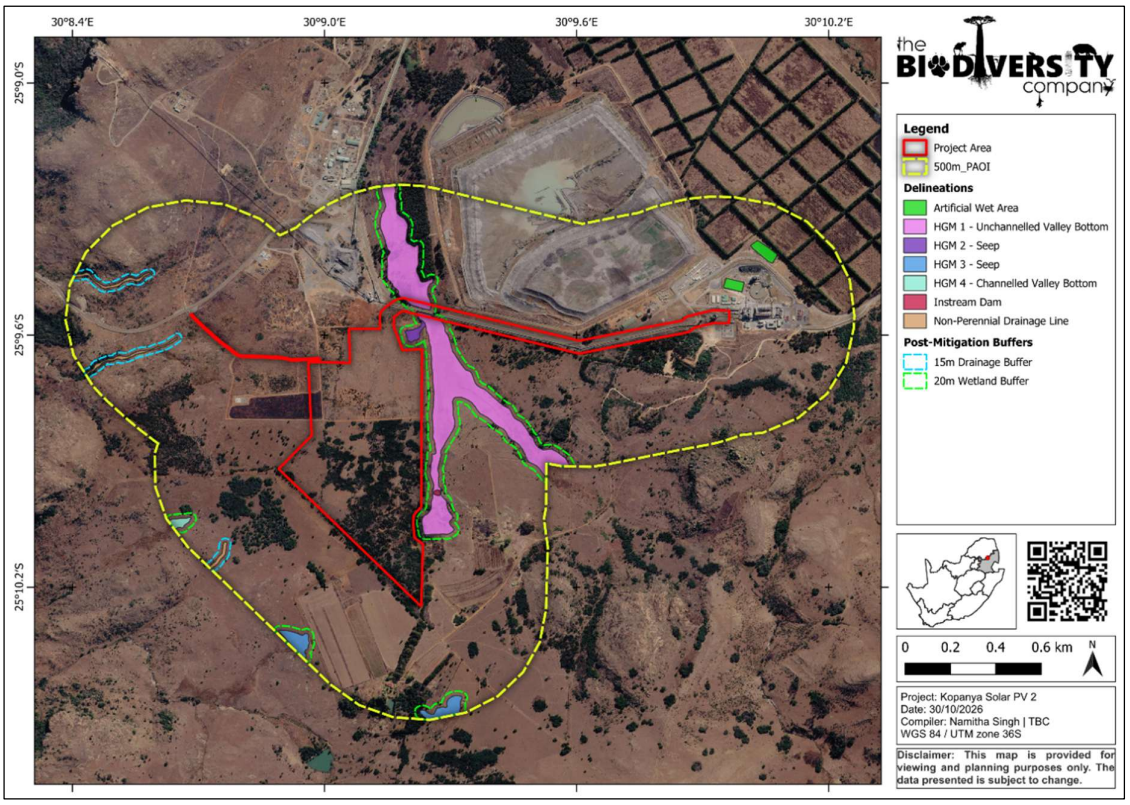


Figure 11-18: Post-Mitigation Buffer Zones for the Identified Watercourses in Relation to the Proposed Project (The Biodiversity Company, 2026d)

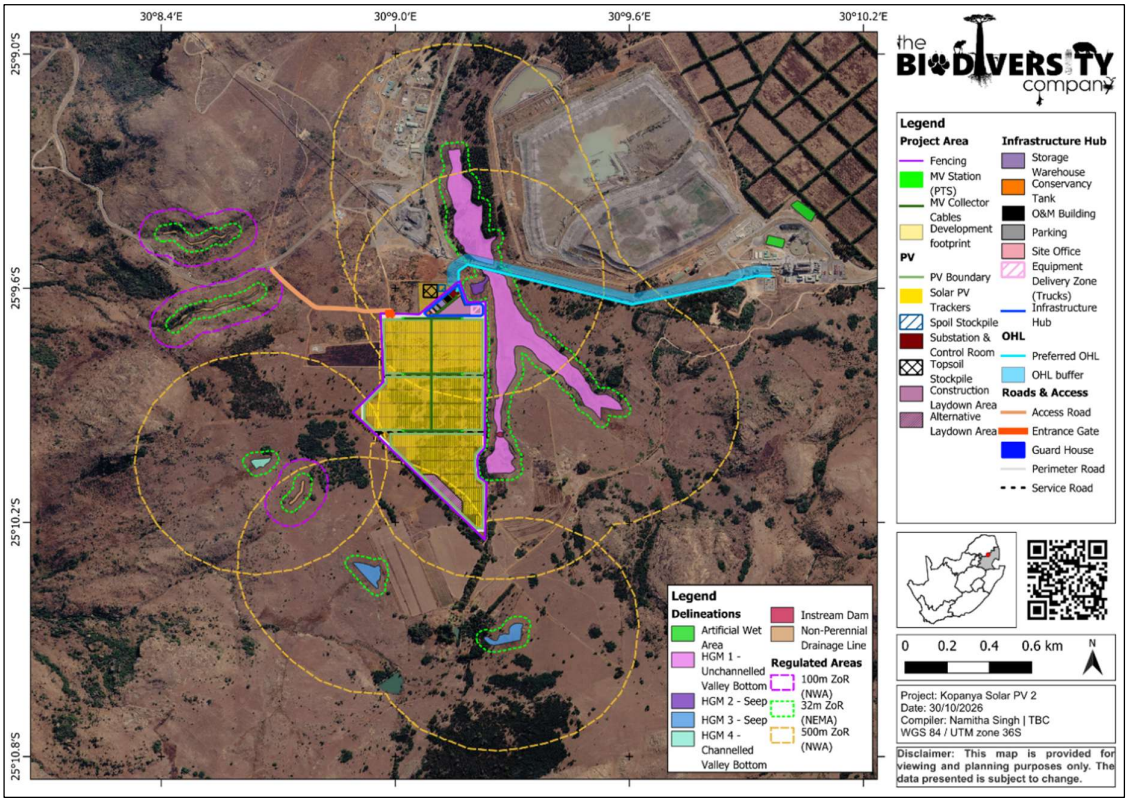


Table 11-16: Watercourse Regulatory Zones in Relation to the Proposed Project (The Biodiversity Company, 2026d)

11.8 Hydropedology

The hydropedological characteristics of the proposed Project area were assessed by The Biodiversity Company (2026e) through a Level 2 Hydropedological Assessment. The study investigated the relationships between soil characteristics, topographic position, infiltration, subsurface flow and surface runoff, with particular consideration of the hydrological connectivity between hillslopes, drainage features and wetlands.

The assessment incorporated desktop investigations, field verification, soil classification and conceptual hillslope hydrological modelling. Eight representative transects were surveyed to identify dominant soil forms and hydropedological response types, with the findings integrated with available wetland delineation information. The assessment provides an understanding of the existing hillslope hydrological processes and the contribution of different soil types to catchment functioning (The Biodiversity Company, 2026e).

11.8.1 Screening Tool and Site Sensitivity Verification Outcomes

Hydropedology is not presented as a separate environmental sensitivity theme in the specialist report's Screening Tool assessment. Consequently, the study does not provide a specific Screening Tool sensitivity rating or corresponding SSV outcome for hydropedology.

The specialist nevertheless undertook site-specific investigations to establish the distribution of

hydrologically significant soil forms and the characteristics of hillslope flow paths. The assessment considered soil morphology, drainage characteristics, topographic position and the relationship between upland recharge areas and lower-lying wetland associated soils.

The field investigations identified recharge, recharge-slow and responsive-wet hydropedological conditions across the assessed hillslopes. The proposed development footprint is situated predominantly within recharge-dominated areas, while more hydrologically sensitive soils occur in lower-lying valley-bottom positions. These findings indicate that hydropedological conditions vary spatially across the proposed Project area, particularly in relation to the distribution of wetland soils and areas supporting lateral or surface flow connectivity (The Biodiversity Company, 2026e).

The location of the field investigation transects and observation points is illustrated in **Figure 11-19**.

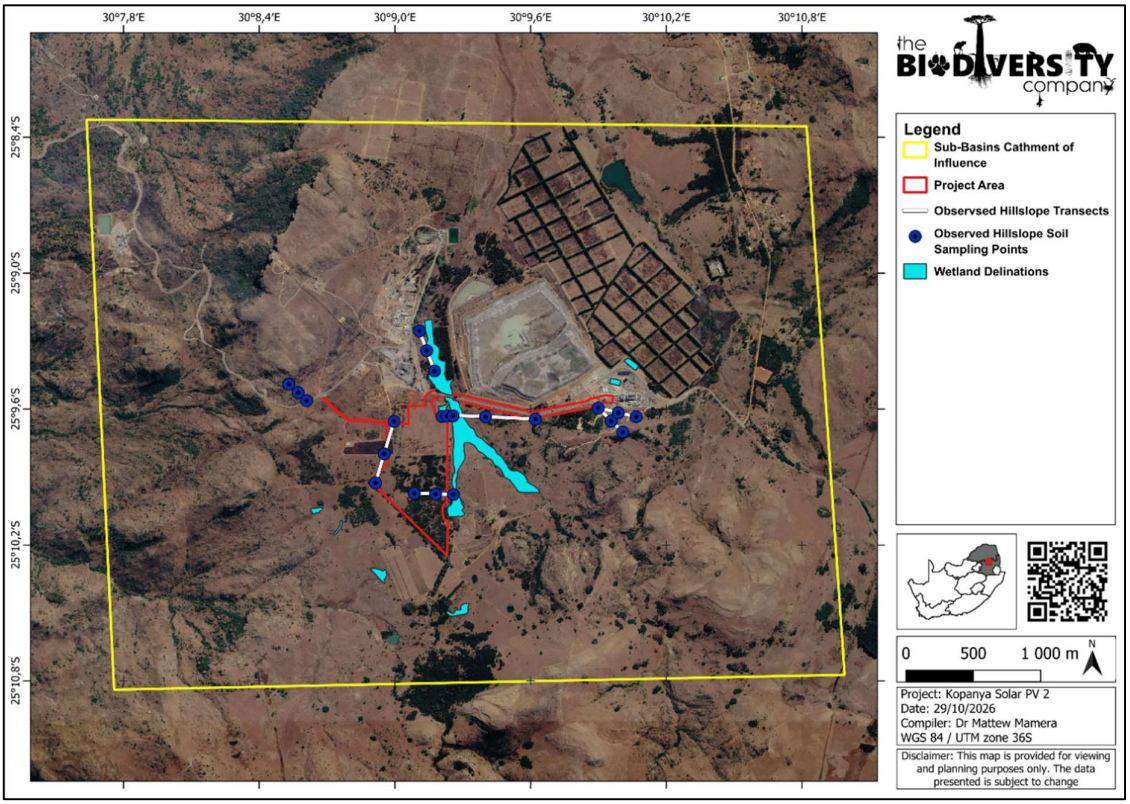


Figure 11-19: Hydropedological Transects and Observation Sites (The Biodiversity Company, 2026e)

11.8.2 Baseline

The hydropedological baseline was established through desktop investigations and field-based soil observations undertaken across eight representative hillslope transects. The investigation considered soil forms, diagnostic horizons, soil drainage characteristics and the movement of water through the soil profile and across the landscape. Soil observations were classified to family level to inform the identification of dominant hydropedological groups and conceptual hillslope hydrological responses (The Biodiversity Company, 2026e).

The proposed Project area comprises undulating to mountainous terrain, with variations in slope, soil depth and underlying geological conditions influencing infiltration, groundwater recharge and the generation of surface and subsurface flow. The hydrological functioning of the landscape is closely associated with the position of soils along individual hillslopes, particularly the transition from well-drained upland soils to lower-lying soils characterised by periodic or prolonged saturation.

The specialist identified several soil forms across the representative hillslopes, including Mispah, Glenrosa, Hutton, Nkonkoni, Vaalbos, Tubatse and Katspruit. These soil forms exhibit differing hydrological responses depending on their diagnostic horizons, drainage characteristics and position within the landscape. The distribution of the identified soil forms and families is illustrated in **Figure 11-20** (The Biodiversity Company, 2026e).

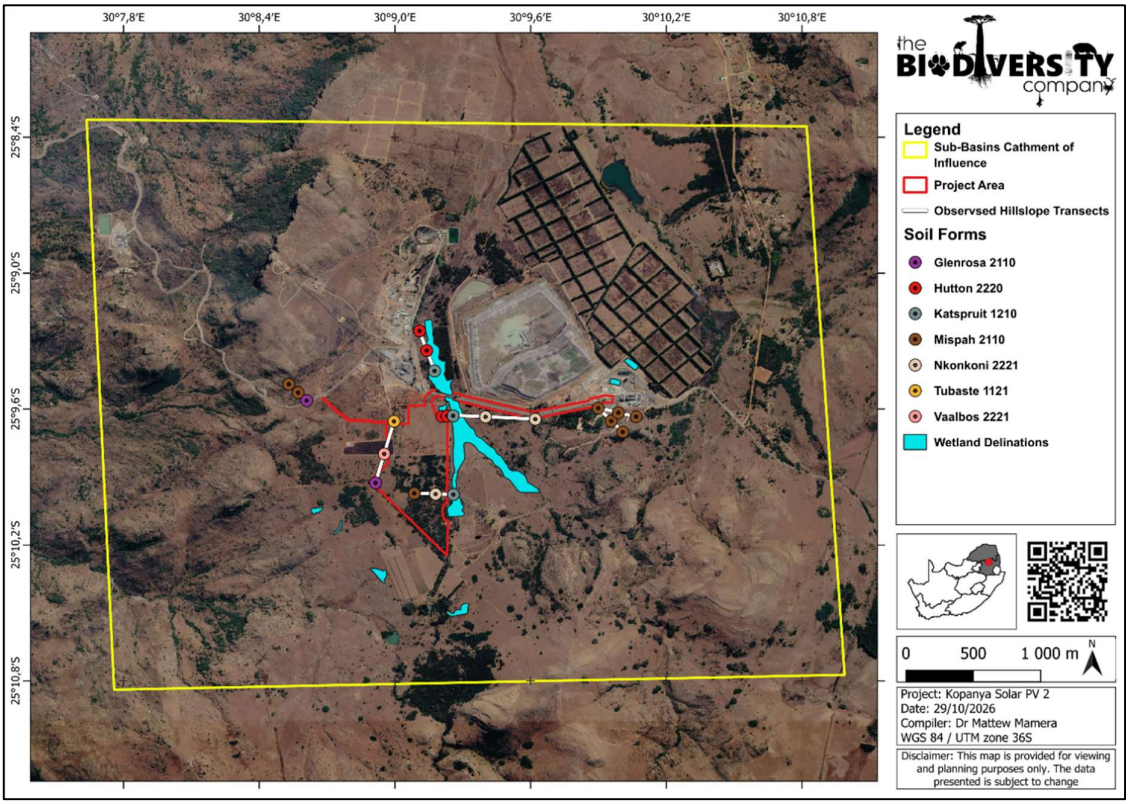


Figure 11-20: Soil Forms and Respective Soil Families Identified within Representative Hillslope Transect (The Biodiversity Company, 2026e)

The identified soil forms and their associated hydropedological characteristics are summarised in **Table 11-17**.

Table 11-17: Summary of Identified Soil Forms and Hydropedological Characteristics

Hydropedological Group	Identified Soil Forms	General Hydrological Characteristics
Recharge soils	Mispah, Glenrosa, Hutton, Nkonkoni and Vaalbos	Predominantly vertical infiltration and groundwater recharge, particularly within upland and midslope positions
Recharge-slow soils	Soils associated with slower-draining lower-slope positions	Restricted vertical drainage and slower redistribution of water within the soil profile

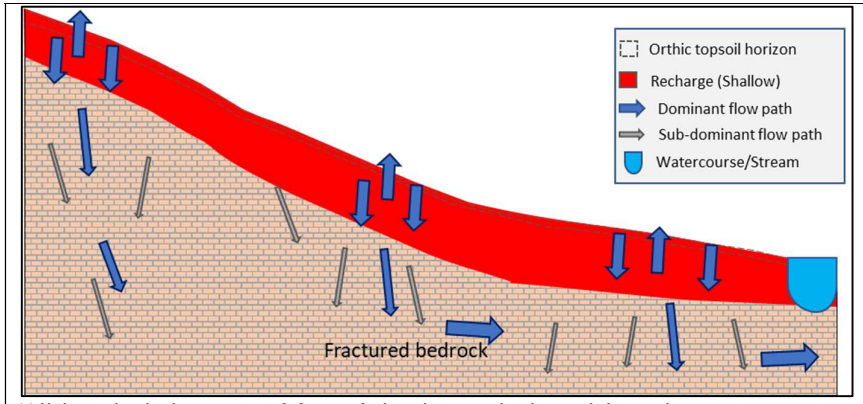
Hydropedological Group	Identified Soil Forms	General Hydrological Characteristics
Responsive-wet soils	Tubatse and Katspruit	Prolonged saturation, overland flow and hydrological connectivity with wetlands and watercourses

Recharge soils occur predominantly within upland and midslope positions and are generally characterised by relatively well-drained profiles that facilitate vertical infiltration and the movement of water towards deeper soil horizons and underlying geological formations. These areas contribute to groundwater recharge and form an important component of the broader hillslope water balance.

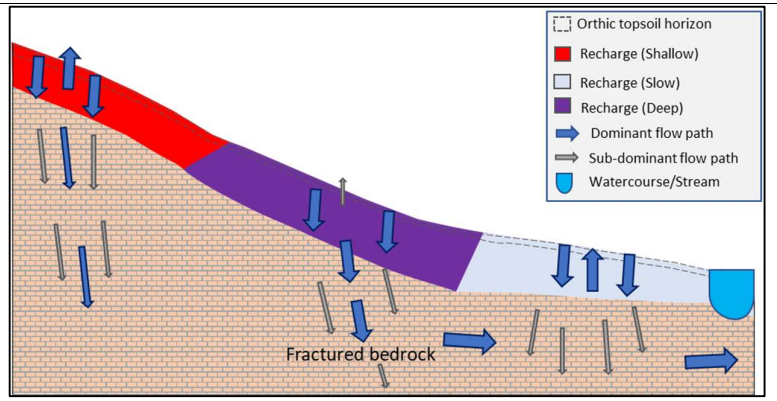
Recharge-slow soils exhibit comparatively restricted vertical drainage, with water movement influenced by soil profile characteristics and underlying horizons. These soils may retain moisture for longer periods than freely draining recharge soils and contribute to the redistribution of water within the hillslope system.

Responsive-wet soils are associated predominantly with lower-lying valley-bottom positions, where water accumulates and soils may remain saturated for extended periods. Tubatse and Katspruit soils were identified within these areas and are associated with slower recharge, prolonged saturation and the generation of overland flow. These soils contribute to the hydrological functioning of wetland associated areas and natural drainage pathways (The Biodiversity Company, 2026e).

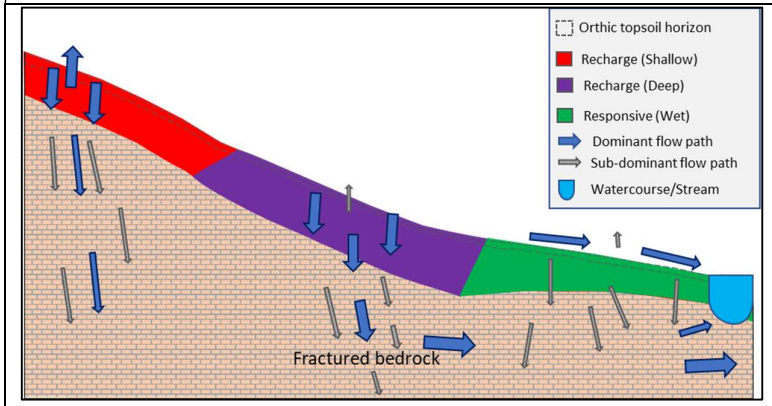
The specialist identified four distinct conceptual hillslope hydrological patterns within the proposed Project area. These patterns reflect variations in the distribution of recharge and responsive soils, as well as the movement of water between upland, midslope and valley-bottom positions. The existing hillslope hydrological patterns are illustrated in **Figure 11-21**.



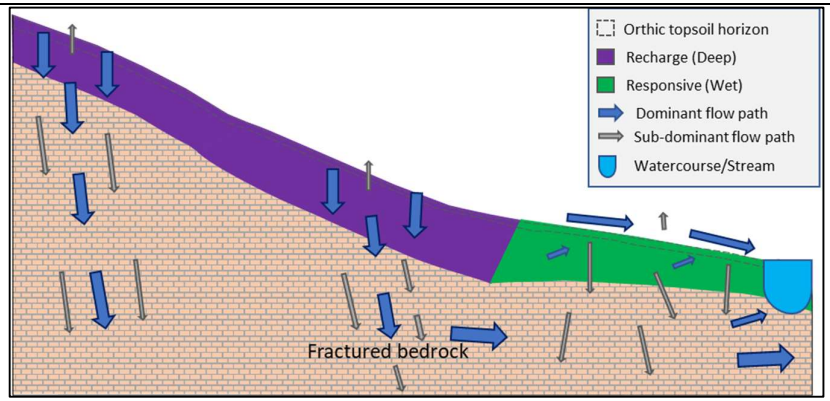
Hillslope hydrology one of four of the distinct hydropedological patterns prior to construction of the proposed Kopanya Solar PV 2 Project and associated infrastructure



Hillslope hydrology two of four of the distinct hydropedological patterns prior to construction of the proposed Kopanya Solar PV 2 Project and associated infrastructure



Hillslope hydrology three of four of the distinct hydropedological patterns prior to construction of the proposed Kopanya Solar PV 2 Project and associated infrastructure



Hillslope hydrology four of four of the distinct hydropedological patterns prior to construction of the proposed Kopanya Solar PV 2 Project and associated infrastructure

Figure 11-21: Existing Hillslope Hydrological Patterns Identified within the Proposed Project area (The Biodiversity Company, 2026e)

The assessment indicates that most of the proposed development footprint is situated within recharge-dominated hillslopes, where infiltration and vertical drainage represent important components of the existing hydrological regime. Lower-lying valley-bottom and wetland associated soils exhibit different hydrological characteristics, with prolonged saturation and greater contributions from surface runoff and lateral water movement.

The hydropedological baseline therefore indicates that recharge processes dominate much of the proposed development footprint, while responsive hydrological conditions occur predominantly in lower-lying areas. These variations reflect the relationship between soil characteristics, topographic position and the movement of water through the surrounding catchment (The Biodiversity Company, 2026e).

11.8.3 Key Specialist Findings and Conclusions

The hydropedological assessment identified four distinct hillslope hydrological patterns, comprising combinations of shallow and deep recharge, recharge-slow and responsive hydropedological conditions. The distribution of these patterns is influenced by soil characteristics, topography and the position of individual soil forms within the hillslope sequence (The Biodiversity Company, 2026e).

The specialist established that the majority of the proposed development footprint occurs within recharge-dominated hillslopes, with Mispah, Glenrosa, Hutton, Nkonkoni and Vaalbos soils contributing predominantly to vertical infiltration and groundwater recharge. Lower-lying valley-bottom areas contain responsive-wet soils, including Tubatse and Katspruit, which are characterised by prolonged saturation and surface runoff contributions to downstream wetlands and watercourses.

The findings of the hydropedological assessment are summarised in **Table 11-18**.

Table 11-18: Summary of Key Hydropedological Findings

Assessment Component	Specialist Finding
Assessment approach	Level 2 Hydropedological Assessment
Field investigations	Eight representative hillslope transects
Identified hillslope patterns	Four conceptual hillslope hydrological patterns
Dominant hydropedological conditions	Recharge-dominated hillslopes
Recharge soil forms	Mispah, Glenrosa, Hutton, Nkonkoni and Vaalbos
Responsive-wet soil forms	Tubatse and Katspruit
Predominant water movement in upland and midslope areas	Vertical infiltration and groundwater recharge
Predominant water movement in valley-bottom areas	Surface runoff, prolonged saturation and associated wetland connectivity
Overall hydropedological characteristics	Recharge-dominated landscape with responsive-wet conditions concentrated in lower-lying areas

The specialist concluded that the hydropedological functioning of the proposed Project area is predominantly characterised by recharge processes, with responsive-wet soils forming a smaller component of the assessed hillslope systems. These lower-lying soils contribute to the hydrological functioning of downstream wetlands and watercourses, while the upland and midslope soils support infiltration and groundwater recharge.

The Biodiversity Company (2026e) concluded that the site-specific hydropedological characteristics provide a basis for understanding the existing hillslope water regimes and the relationship between

recharge areas and downstream receiving environments. The assessment identified no indication that the broader landscape is dominated by responsive-wet conditions, with the hydrological processes associated with vertical infiltration and groundwater recharge across the majority of the assessed hillslopes.

11.9 Archaeological and Cultural Heritage

Digby Wells Environmental (2026) undertook a Heritage Impact Assessment for the proposed Project in accordance with Section 38 of the NHRA. The assessment included a review of previous heritage investigations, relevant literature and heritage databases, followed by a pedestrian field survey of the proposed development footprint. The purpose was to identify archaeological, historical and cultural heritage resources that could be affected by the proposed Project and to recommend appropriate protection and management measures.

11.9.1 Screening Tool and Site Sensitivity Verification Outcomes

The Screening Tool classified the Archaeological and Cultural Heritage Theme as High sensitivity, associated with the identification of an existing Grade IIIa heritage site within 150 m of the screened area. This classification indicates the potential presence of heritage resources requiring further consideration during the environmental assessment.

The site-specific verification undertaken by Digby Wells Environmental (2026) included a desktop review of previous heritage assessments and records available through the South African Heritage Resources Information System (SAHRIS), followed by a non-intrusive pedestrian survey of the proposed Project footprint on 6 February 2026. Although numerous heritage resources have been recorded within the broader Booysendal mining area, none of the previously recorded sites was identified within the proposed Project footprint. The field survey also did not identify any new archaeological resources, historical structures, burial grounds or graves within the assessed development area.

The findings therefore indicate that the High sensitivity assigned by the Screening Tool is not representative of the heritage conditions verified within the proposed Project footprint. However, the specialist acknowledged that dense vegetation limited ground visibility in certain areas and that previously unidentified heritage resources could be encountered during construction (Digby Wells Environmental, 2026).

Table 11-19: Archaeological and Cultural Heritage Screening Outcomes

Screening Tool Feature	Screening Tool Sensitivity	Verified Sensitivity	Outcome
Within 150 m of a Grade IIIa heritage site	High	Low within the surveyed development footprint, based on the absence of identified heritage resources	Disputed
Remaining areas classified as Low sensitivity	Low	Low within the surveyed development footprint	Validated

The specialist findings support a Low site-specific heritage sensitivity within the surveyed development footprint, notwithstanding the High sensitivity identified by the Screening Tool. This

conclusion is based on the absence of recorded or newly identified heritage resources within the footprint and does not negate the cultural significance of known resources in the surrounding landscape. The potential for chance discoveries must therefore be addressed through appropriate management measures during ground-disturbing activities.

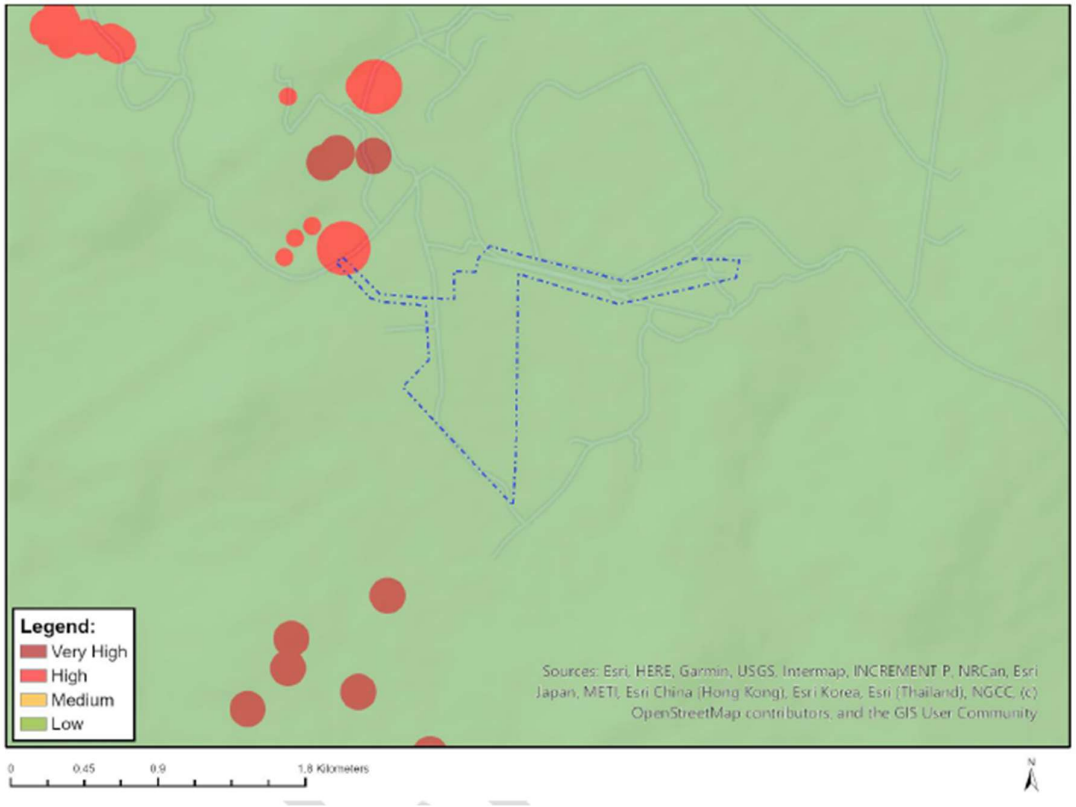


Table 11-20: Archaeological and Cultural Heritage Screening Tool Sensitivity

The specialist findings support a Low site-specific heritage sensitivity within the surveyed development footprint, notwithstanding the High sensitivity identified by the Screening Tool. This conclusion is based on the absence of recorded or newly identified heritage resources within the footprint and does not negate the cultural significance of known resources in the surrounding landscape. The potential for chance discoveries must therefore be addressed through appropriate management measures during ground-disturbing activities.

11.9.2 Archaeological, Historical and Cultural Heritage Context

The proposed Project is situated within the existing BS Mine, in the broader Dwarsrivier Valley, which has a long history of human occupation and land use. The cultural landscape reflects successive periods of Stone Age occupation, Iron Age settlement, historical agricultural activities and more recent mining development. Previous heritage investigations within the broader Booysendal mining area have documented archaeological and historical features, including stone-walled settlements, agricultural terraces, ruins, burial grounds and cemeteries (Digby Wells Environmental, 2026).

The Stone Age archaeological record in the wider region includes evidence of Middle and Later Stone Age occupation, generally represented by isolated stone artefacts and other material associated with historical human activity. The Iron Age record is particularly important, with settlement patterns associated with Sotho-Tswana-speaking communities and later stone-walled settlements. The broader region also forms part of the historical landscape associated with the Bapedi and Bokoni communities, whose settlement and agricultural practices contributed to the development of the area's cultural character (Digby Wells Environmental, 2026).

Previous heritage assessments undertaken since 2001 have recorded more than 240 heritage sites in the greater study area, representing periods from the Middle Stone Age to more recent historical occupation. Within the Booysendal North and South mining areas, previous investigations documented stone-walled settlements, archaeological material, historical structures and burial grounds. These records confirm the heritage importance of the wider landscape, although none of the previously identified resources occurs within the proposed Project footprint (Digby Wells Environmental, 2026).

The broader area was historically used for agricultural activities before the expansion of mining operations. Historical aerial imagery and topographical mapping indicate previous cultivation and relatively limited built development in the vicinity of the proposed Project footprint. The landscape has subsequently been modified by mining infrastructure, roads, electrical infrastructure and associated earthworks. The immediate setting of the proposed Project is therefore predominantly industrial, although the wider Dwarsrivier Valley retains its archaeological and cultural heritage significance (Digby Wells Environmental, 2026).

The specialist undertook a pedestrian field survey on 6 February 2026 to verify the presence of heritage resources within the proposed Project footprint. The survey did not identify archaeological remains, buildings or structures older than 60 years, formal or informal burial grounds, or other heritage resources protected under the NHRA. A review of the Genealogical Society of South Africa database and previous heritage assessments also confirmed that recorded cemeteries in the broader area are located outside the defined development impact area (Digby Wells Environmental, 2026).

The survey was undertaken during the summer season, when vegetation was relatively dense, which reduced ground visibility in certain portions of the footprint. Consequently, while no heritage resources were identified, the possibility of previously concealed or buried resources being encountered during construction cannot be entirely excluded. The specialist therefore recommended precautionary measures to manage unexpected discoveries (Digby Wells Environmental, 2026).

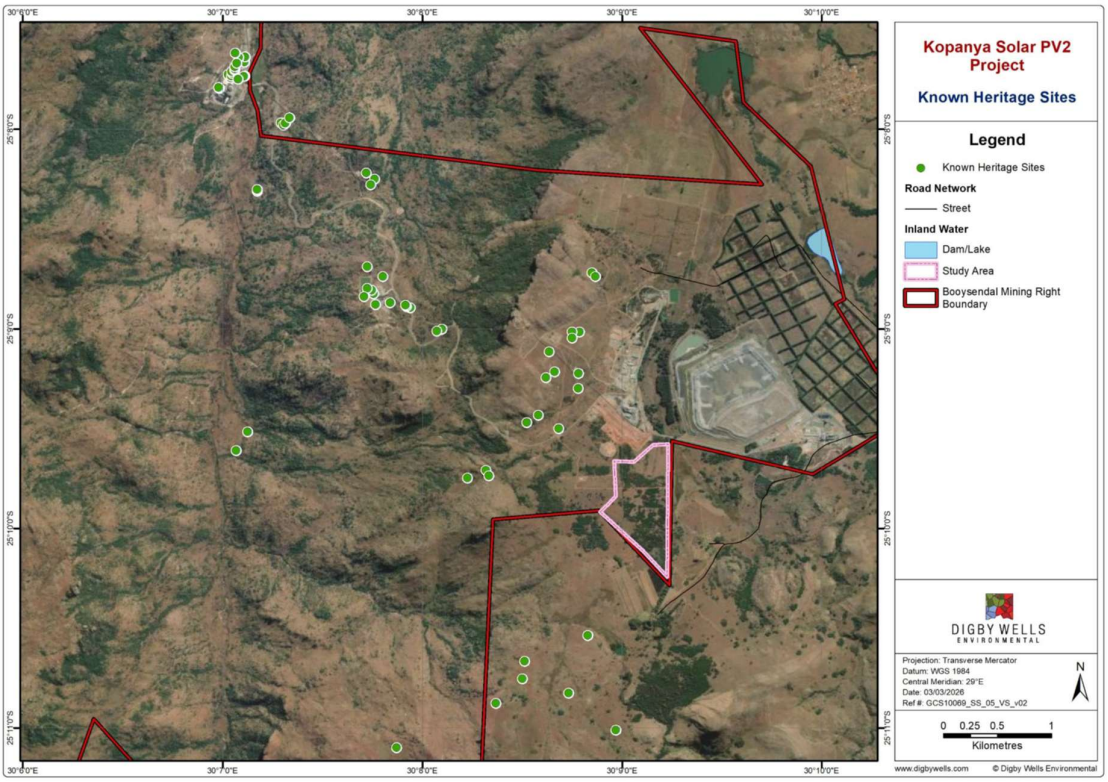


Figure 11-22: Previously Recorded Heritage Resources in the Wider Study Area (Digby Wells Environmental, 2026)

11.9.3 Key Specialist Findings and Conclusions

The Heritage Impact Assessment concluded that no known archaeological, historical or burial resources occur within the surveyed development footprint of the proposed Project. Although the broader Dwarsrivier Valley contains numerous recorded heritage resources, the proposed Project is located within an existing mining landscape, and no direct impacts on identified heritage resources are anticipated. The specialist further concluded that the proposed development would not materially alter the existing character or heritage integrity of the surrounding cultural landscape ((Digby Wells Environmental, 2026).

The residual heritage risk relates to the potential discovery of previously unidentified archaeological material, historical remains or graves during vegetation clearance, excavation and other ground-disturbing activities. To address this risk, the specialist recommended implementation of a Chance Find Procedure (CFP), which establishes the requirements for reporting, protecting and assessing any heritage resources discovered during construction, operation or decommissioning. Contractors and site personnel must receive appropriate heritage awareness training and be informed of their obligations under the NHRA.

The specialist also recorded concerns raised by local communities regarding the protection of ancestral graves and other culturally significant resources. Further consultation, undertaken with the assistance of a heritage specialist, was recommended to establish the locations of the former

chief's and his wife's graves, together with other graves and significant artefacts identified by community members. Should such resources be found within the proposed Project area, appropriate protection and access arrangements must be established in consultation with the affected communities, subject to applicable health and safety requirements (Digby Wells Environmental, 2026).

The specialist further recommended that the Heritage Impact Assessment be made available to affected communities at the locations requested during consultation and that heritage awareness and reporting requirements be incorporated into the EMPr. Any heritage resources discovered during implementation must be managed in consultation with an appropriately qualified heritage specialist and the relevant heritage resources authority.

Based on the absence of identified heritage resources within the proposed Project footprint, Digby Wells Environmental (2026) concluded that the proposed Project may be authorised from an archaeological and cultural heritage perspective, subject to implementation of the recommended management measures and approval by the South African Heritage Resources Agency (SAHRA).

11.10 Palaeontology

The palaeontological component of the Heritage Impact Assessment undertaken by Digby Wells Environmental (2026) considered the potential for fossil heritage resources within the proposed Project area. The assessment included a review of the palaeontological sensitivity information available through SAHRIS and the preparation of a Fossil Find Procedure (FFP) to guide the management of any palaeontological material encountered during implementation of the proposed Project.

11.10.1 Screening Tool and Site Sensitivity Verification Outcomes

The Screening Tool classified the Palaeontology Theme as Medium sensitivity, indicating that the underlying geological formations may contain palaeontological resources. This classification is based on available geological and palaeontological sensitivity datasets and provides an initial indication of the potential for fossil heritage resources within the proposed Project area.

The Heritage Impact Assessment reviewed the SAHRIS Palaeosensitivity Map, which classifies the underlying geology of the proposed Project area as having Low to Insignificant palaeontological sensitivity. The specialist also reported that no previous palaeontological studies had been undertaken within the proposed Project area and that no fossil material or palaeontological indicators were observed during the field assessment (Digby Wells Environmental, 2026).

The specialist findings therefore indicate a lower palaeontological sensitivity than the Medium classification identified by the Screening Tool. The verification was informed by the available palaeontological sensitivity mapping and observations made during the heritage field assessment, rather than a separate detailed Palaeontological Impact Assessment.

Table 11-21: Palaeontology Screening Outcomes

Screening Tool Feature	Screening Tool Sensitivity	Verified Sensitivity	Outcome
Palaeontological sensitivity of underlying geological formations	Medium	To be confirmed by the palaeontological specialist	Medium

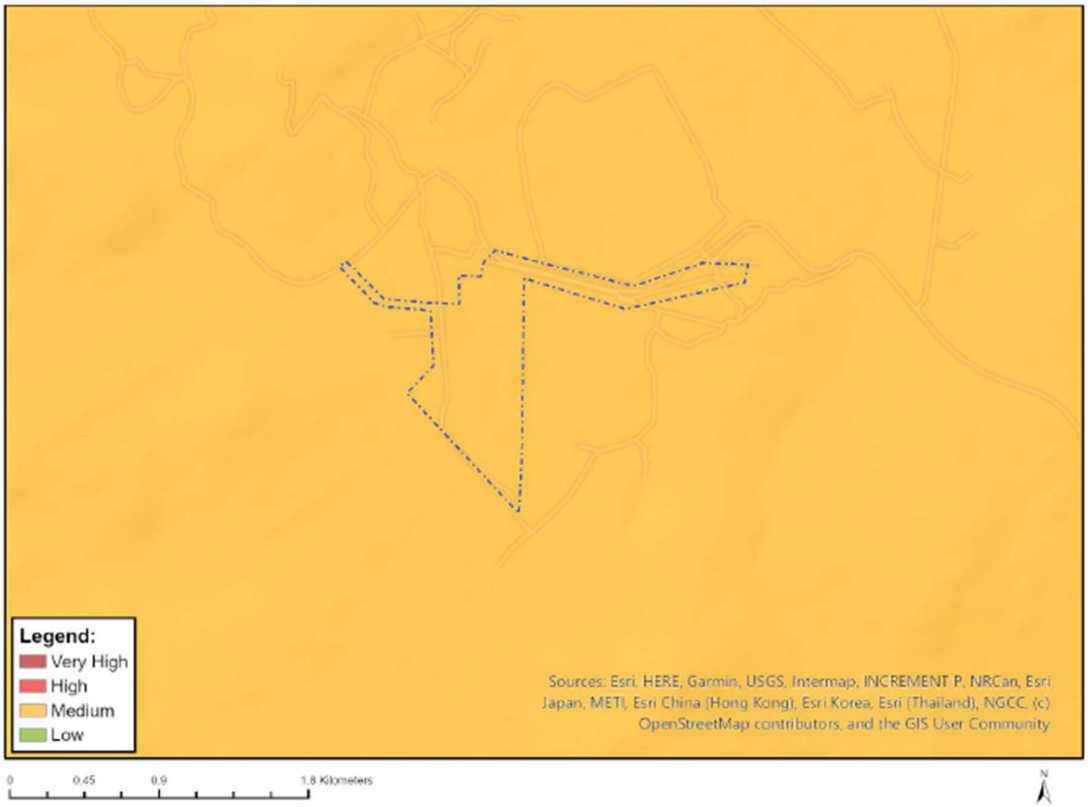


Figure 11-23: Palaeontological Screening Tool Sensitivity



Colour	Sensitivity	Required Action
RED	VERY HIGH	field assessment and protocol for finds is required
ORANGE/YELLOW	HIGH	desktop study is required and based on the outcome of the desktop study, a field assessment is likely
GREEN	MODERATE	desktop study is required
BLUE	LOW	no palaeontological studies are required however a protocol for finds is required
GREY	INSIGNIFICANT/ZERO	no palaeontological studies are required
WHITE/CLEAR	UNKNOWN	these areas will require a minimum of a desktop study. As more information comes to light, SAHRA will continue to populate the map.

Figure 11-24: Palaeontological Sensitivity of the Proposed Project Area Based on the SAHRIS Palaeosensitivity Map

The site-specific assessment indicates that the likelihood of encountering fossil heritage resources during implementation of the proposed Project is low. Nevertheless, ground-disturbing activities associated with foundations, access roads, cable trenches and other infrastructure could expose previously unidentified palaeontological material. The specialist therefore recommended implementation of an FFP as a precautionary measure (Digby Wells Environmental, 2026).

11.10.2 Geological Setting and Palaeontological Sensitivity

The palaeontological sensitivity of the proposed Project area is informed by the underlying geological formations and their potential to preserve fossil material. The Heritage Impact Assessment reviewed the SAHRIS Palaeosensitivity Map to determine the likelihood of fossil-bearing geological deposits occurring within the development footprint. This review classified the underlying geology as having Low to Insignificant palaeontological sensitivity, indicating a limited potential for fossil heritage resources (Digby Wells Environmental, 2026).

The proposed Project is situated within the existing BS Mine, where historical and ongoing mining activities have resulted in localised ground disturbance and modification of the natural landscape. Construction of the proposed solar PV facility and associated infrastructure will involve ground disturbance, including the installation of support structures, electrical infrastructure, access roads and associated foundations. Although these activities may expose underlying geological material, the palaeontological sensitivity mapping does not indicate a significant likelihood of fossil-bearing deposits being encountered within the proposed development footprint.

The heritage field survey undertaken on 6 February 2026 did not identify any fossil material or

palaeontological indicators within the proposed Project footprint. The Heritage Impact Assessment also confirmed that no previous palaeontological studies had been conducted within the proposed Project area. Consequently, the palaeontological baseline is informed primarily by the available SAHRIS sensitivity mapping and the observations recorded during the heritage assessment (Digby Wells Environmental, 2026).

Given the Low to Insignificant palaeontological sensitivity, the specialist did not identify any known fossil heritage resources requiring avoidance or additional site-specific protection measures. However, the possibility of encountering previously unidentified fossil material during excavation cannot be entirely excluded. To address this residual uncertainty, an FFP was prepared for the proposed Project by Professor Marion Bamford and included in the Heritage Impact Assessment ((Digby Wells Environmental, 2026).

11.10.3 Key Specialist Findings and Conclusions

The Heritage Impact Assessment concluded that the proposed Project area has Low to Insignificant palaeontological sensitivity based on the SAHRIS Palaeosensitivity Map. No fossil material or palaeontological indicators were identified during the field assessment, and no known palaeontological resources were recorded within the proposed Project footprint. The likelihood of significant adverse impacts on palaeontological heritage resources is therefore considered low (Digby Wells Environmental, 2026).

The potential impact relates to the accidental disturbance or destruction of previously unidentified fossil material during excavation and other ground-disturbing activities. To manage this risk, the specialist recommended implementation of the FFP during construction, operation and decommissioning. The procedure provides for the identification, reporting and appropriate management of fossil material that may be encountered unexpectedly.

Should potential fossil material be discovered, work in the immediate area must cease, the find must be protected from further disturbance, and an appropriately qualified palaeontologist must be consulted to determine the significance of the discovery and any further management requirements. Where necessary, the relevant heritage resources authority must be notified, and any required permits must be obtained before the material is disturbed or removed.

The FFP must be incorporated into the EMPr, and relevant construction personnel must be informed of the procedures to be followed in the event of a fossil discovery. These measures will ensure that unexpected palaeontological resources are appropriately identified and managed in accordance with the NHRA.

Based on the findings of the Heritage Impact Assessment, Digby Wells Environmental (2026) identified no known palaeontological constraints that would prevent implementation of the proposed Project. The proposed Project may therefore be favourably considered from a palaeontological heritage perspective, subject to implementation of the FFP and compliance with any applicable requirements of SAHRA.

11.11 Air Quality

The proposed Project is located within the existing BS Mine, in a predominantly rural area influenced by established mining activities.

Existing sources of air emissions in the wider area include dust generated by mining activities, vehicle movements on mine and regional roads, exposed surfaces and other operational activities. Ambient air quality is therefore influenced by both the rural setting and existing mining-related dust sources.

Surrounding rural households and communities represent the main potentially sensitive receptors to changes in air quality.

11.12 Noise Environment

The proposed Project is located within the existing BS Mine, within a predominantly rural but established mining environment. Existing noise sources include mining activities, mine-related vehicles, electrical infrastructure and traffic on local and regional roads. Surrounding rural households and communities represent the main potentially sensitive noise receptors.

11.13 Traffic and Transportation

The proposed Project is located within the existing BS Mine and will make use of the established mine access and internal road network. The mine is accessed from the R577 regional road, which forms part of the existing transportation network serving BS and surrounding land uses.

Existing traffic in the area includes mine personnel, contractors, service vehicles, deliveries and other mine-related vehicle movements. The R577 and local roads are also used by surrounding communities, businesses and other road users.

11.14 Socio-Economic Environment

The socio-economic context of the proposed Project has been informed by the Socio-Economic Impact Assessment for the Booysendal South Expansion Project, prepared by Southern Economic Development in August 2023. The assessment covers the broader BS host environment and provides information on Ward 5 of the Thaba Chweu Local Municipality, the Kiwi Farm Community, surrounding rural communities, local livelihoods, employment, services and the Bokoni Ba Phetla Communal Property Association (Southern Economic Development, 2023).

The 2023 assessment was prepared for a different development and is therefore used in this BAR as contextual baseline information only. Some of the demographic and socio-economic information relied on by that study dates from earlier census and community-survey periods. Accordingly, the information is used to describe the broad socio-economic character of the area and should not be interpreted as representing all current conditions in 2026.

Project-specific issues, including stakeholder interests, community concerns, land-related matters, employment and procurement expectations, will be further informed through the current PPP.

11.14.1.1Settlement and Community Context

The broader BS area is predominantly rural and characterised by relatively low-density settlement. The 2023 assessment reported that Ward 5 had a population density of approximately 10 people per square kilometre in 2011, while the Ward population was estimated at approximately 13,400 people in 2016. The nearby Kiwi Farm Community was estimated at the time of the study to comprise approximately 150 families, or around 300 people (Southern Economic Development, 2023).

Settlement within the wider area occurs alongside a mixture of mining, private and communal farming, livestock activities, subsistence agriculture and land associated with the historical Bokoni Ba Phetla land claim. Former kiwi orchards also form part of the historical land use character of the BS area.

The proposed Project will be developed within the existing BS mining environment and does not represent the establishment of a new settlement or urban development. Nevertheless, surrounding communities remain important stakeholders because construction activities, employment expectations, procurement opportunities, traffic and other Project-related effects may be experienced beyond the immediate development footprint.

11.14.1.2Landownership

Land within the broader BS area is held under a combination of private, mine and communal ownership arrangements. The Phetla Communal Property Association owns portions of land within the broader area, which are leased to Booysendal.

11.14.1.3Education, Employment and Livelihoods

The available baseline indicates relatively low formal skills levels within Ward 5. Based on the 2016-adjusted data used in the 2023 study:

- Approximately 69.1% of adults had less than secondary education;
- Approximately 28.4% had completed secondary education; and
- Approximately 2.5% had tertiary qualifications.

The Ward 5 official unemployment rate was recorded at approximately 26.8% in 2011 and approximately 49.1% of households were below the upper poverty line in the same period (Southern Economic Development, 2023).

11.14.1.4Local Economy

Mining is a dominant economic activity and employment source in the area. The 2023 assessment reports that mining represented approximately 24% of municipal employment in 2015 and accounted for a substantial share of local economic output. Booysendal is itself a major direct and indirect employer within the host area (Southern Economic Development, 2023).

Local development priorities identified in the assessment include mining, agriculture, tourism, Small, Medium and Micro Enterprise development and the green economy. Alternative energy,

including solar energy, is specifically identified as an economic development opportunity.

11.14.1.5Services and Social Infrastructure

The 2023 assessment identifies constraints associated with road maintenance, electricity infrastructure and potable-water provision in rural parts of the municipality. Approximately 30% of Ward 5 households reportedly relied on borehole or direct river water in 2011 (Southern Economic Development, 2023; The Biodiversity Company, 2026d).

The Kiwi Clinic provides an important local primary-health service within the BS area.

11.14.1.6Social Stability and Expectations

Employment, procurement and access to economic opportunities are important social issues within the wider mining environment. The 2023 socio-economic assessment records previous community protests and road blockages in the broader area and identifies employment opportunities, service delivery concerns and expectations regarding participation in mining-related economic opportunities as factors that may contribute to social tension (Southern Economic Development, 2023).

These historical issues indicate that employment, procurement and the distribution of economic opportunities remain relevant stakeholder considerations in the wider mining environment.

11.15 Landscape or Visual

The landscape and visual characteristics of the proposed Project area were assessed by Donaway Environmental (2026) through a Landscape SSV and a Visual Impact Assessment. The assessments considered the existing landscape character, topography, vegetation, land use, scenic resources, potentially sensitive visual receptors and the extent to which the proposed solar PV facility and associated infrastructure may be visible within the surrounding landscape.

The Visual Impact Assessment included a site inspection undertaken on 6 February 2026, supported by desktop investigations, spatial analysis and a Zone of Theoretical Visibility (ZTV) assessment extending 10 km from the proposed development. The findings informed the verification of landscape sensitivity, identification of potential visual impacts and development of mitigation measures for the proposed Project (Donaway Environmental, 2026).

11.15.1 Screening Tool and Site Sensitivity Verification Outcomes

The Landscape SSV undertaken by Donaway Environmental (2026), supported by the VIA, evaluated the landscape characteristics and visual sensitivities identified by the Screening Tool. The assessment considered topography, slope gradients, proximity to conservation areas, prominent landscape features, existing land uses and the distribution of potentially sensitive visual receptors.

The Screening Tool classified the Landscape (Solar) Theme as Very High sensitivity. This classification was associated with mountainous terrain, steep slopes, proximity to the Davel Private Nature Reserve and De Berg Nature Reserve, and the presence of mountain tops and prominent ridgelines within the broader landscape.

The specialist undertook site-specific verification using slope mapping, topographic information, protected area mapping and ZTV analysis. The investigation established that the proposed development footprint is situated predominantly within a valley and midslope position rather than on prominent ridgelines or mountain tops. The surrounding mountainous terrain provides substantial topographic screening, reducing the extent to which the proposed development would be visible from surrounding areas.

The topography of the proposed Project area and surrounding landscape is illustrated in **Figure 11-1**.

The specialist disputed the High sensitivity associated with slopes between 1:4 and 1:10, reducing the classification to Medium because only limited portions of the proposed development area occur on these slopes and surrounding topography restricts visibility. The Very High sensitivity associated with mountain tops and high ridges was also disputed and revised to Medium, as the proposed development footprint does not occupy prominent skyline positions.

The High sensitivity associated with areas between 1.5 km and 3 km of a nature reserve was revised to Medium because intervening landforms substantially restrict visibility towards the Davel Private Nature Reserve and De Berg Nature Reserve. The Low sensitivity associated with slopes less than 1:10 and the Medium sensitivity associated with areas between 3 km and 5 km of a nature reserve were confirmed.

The Landscape (Solar) SSV outcomes are summarised in **Table 11-22**.

Table 11-22: Landscape (Solar) Site Sensitivity Verification Outcomes

Screening Tool Feature	Screening Tool Sensitivity	Verified Sensitivity	Outcome
Slopes between 1:4 and 1:10	High	Medium	Disputed
Within 1.5–3 km of a nature reserve	High	Medium	Disputed
Slopes less than 1:10	Low	Low	Validated
Within 3–5 km of a nature reserve	Medium	Medium	Validated
Mountain tops and high ridges	Very High	Medium	Disputed

The ZTV analysis indicates that portions of the surrounding landscape may have theoretical views towards the proposed development. However, the surrounding ridgelines and valley systems substantially restrict actual visibility, particularly where intervening vegetation and existing infrastructure provide additional screening. The Visual Impact Assessment classified the overall landscape sensitivity as Moderate and receptor sensitivity as Low to Moderate, with a High Visual Absorption Capacity (VAC) attributable to the pronounced topography and existing vegetation (Donaway Environmental, 2026).

The theoretical visibility of the proposed solar PV facility is illustrated in **Figure 11-25**.

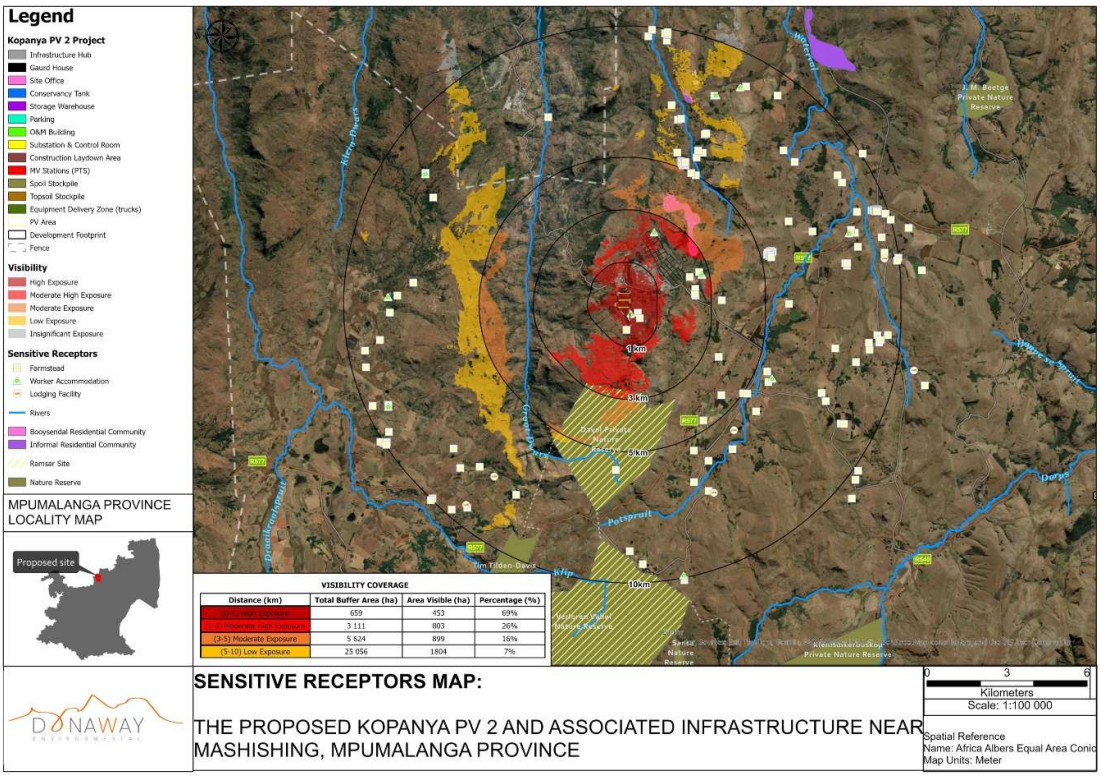


Figure 11-25: Zone of Theoretical Visibility of the Proposed Solar PV Facility

Overall, the specialist disputed the Screening Tool's Very High Landscape sensitivity and concluded that the site-specific sensitivity is predominantly Medium. This finding reflects the proposed development's position within the valley landscape, the screening provided by surrounding topography and vegetation, and the existing mining-related character of the receiving environment.

11.15.2 Baseline

The proposed Project is located within the BS Mine operational area, approximately 30 km west of Mashishing, Mpumalanga Province. The surrounding landscape is mountainous and highly undulating, characterised by prominent north–south-orientated ridgelines, steep slopes and deeply incised valleys. Elevations within the broader assessment area range from approximately 886 metres to 2 331 mamsl, creating substantial variations in topography, landscape enclosure and visual exposure (Donaway Environmental, 2026).

The proposed development footprint is positioned predominantly within a valley and midslope setting, rather than on elevated ridgelines or prominent mountain tops. This positioning reduces the potential for skyline intrusion and limits long-distance visibility from surrounding areas. The surrounding terrain provides natural screening, while the comparatively gentler valley and transitional slopes accommodate the proposed infrastructure without substantially altering the dominant mountainous skyline (Donaway Environmental, 2026).

Vegetation within the surrounding landscape comprises predominantly Sekhukhune Montane

Grassland, with more open grassland occurring across upland areas and Bushveld vegetation associated with lower-lying valleys and warmer slopes. Seasonal variations in vegetation cover influence the landscape's colour, texture and visual character. Existing vegetation also contributes to visual screening, particularly where denser vegetation occurs between the proposed development and surrounding receptors (Donaway Environmental, 2026).

The vegetation patterns within the proposed Project area and surrounding landscape are illustrated **Figure 11-26**.

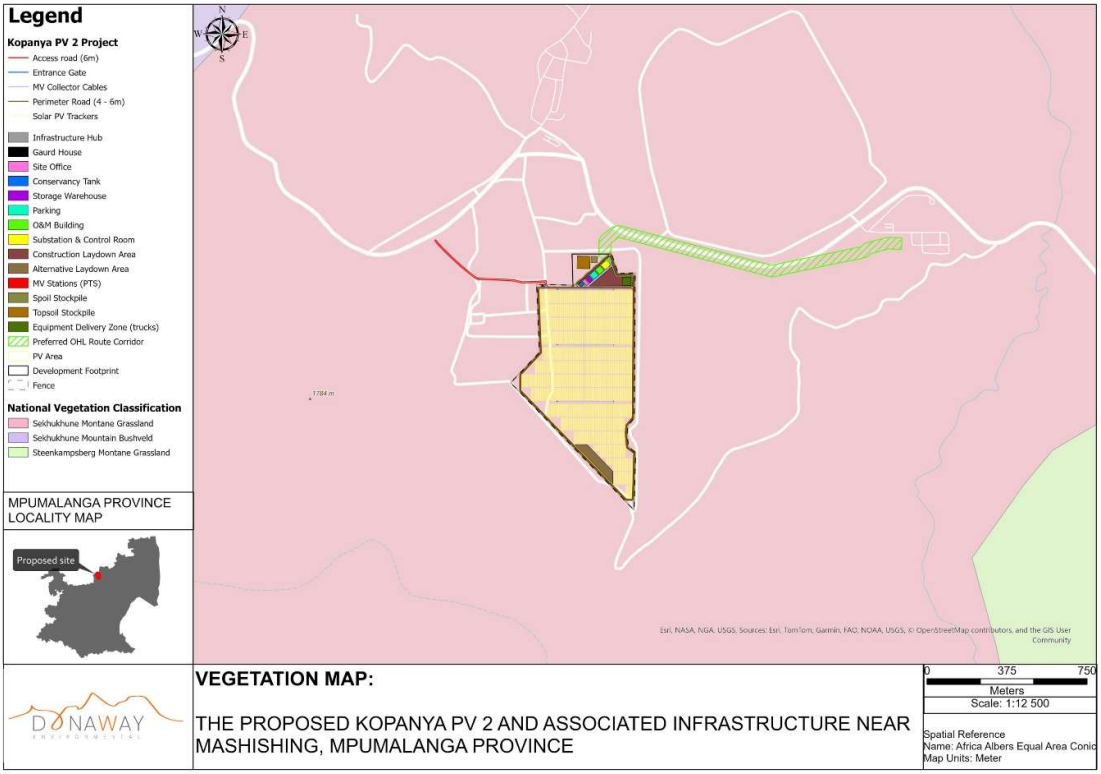


Figure 11-26: Vegetation within the Proposed Project Area and Surrounding Landscape

Land use within the broader area comprises mining, agriculture, scattered rural settlements and conservation-related activities. Mining operations and associated infrastructure are particularly prominent towards Steelpoort to the north, where roads, powerlines, industrial facilities and other mining-related developments have modified the receiving environment. The proposed Project is therefore located within a landscape that retains significant natural and scenic characteristics but is already influenced by established industrial and agricultural activities (Donaway Environmental, 2026).

The existing land use and land cover within the proposed Project area are illustrated in **Figure 11-27**.

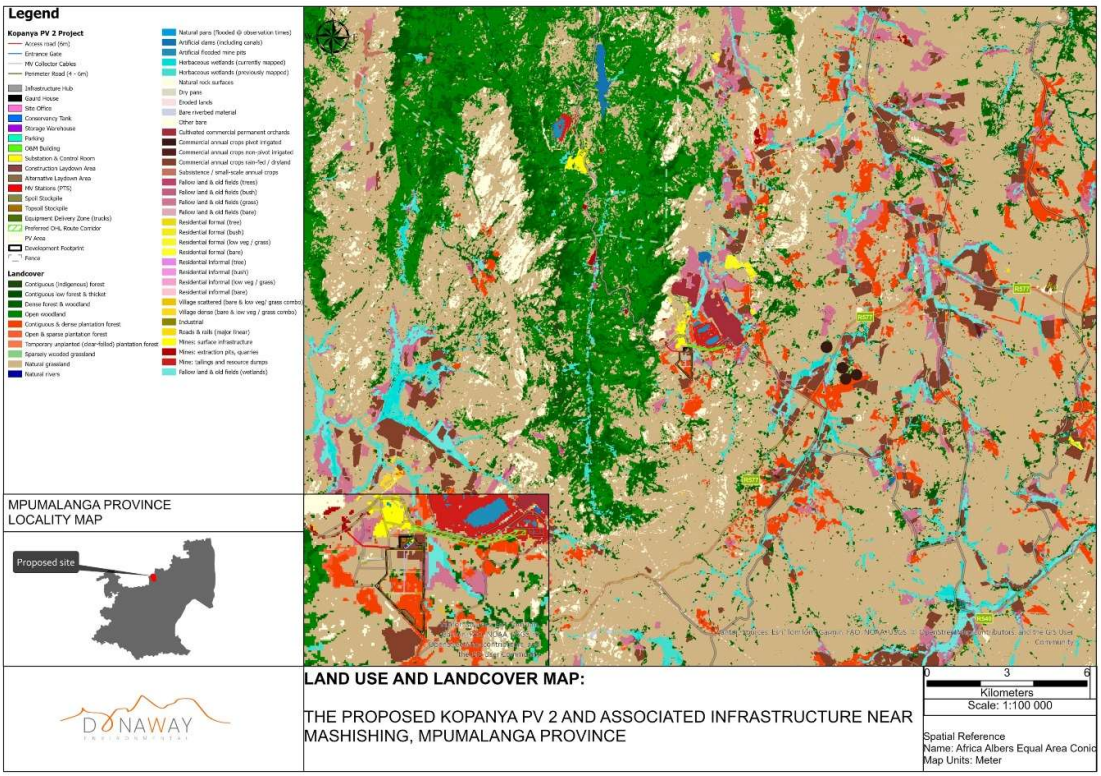


Figure 11-27: Land Use and Land Cover within the Proposed Project Area

The sense of place is characterised by the combination of rugged mountainous terrain, open grassland, enclosed valley systems and an established mining economy. The surrounding ridgelines and elevated areas contribute to the scenic character of the region, while existing mining infrastructure creates a rural-industrial landscape rather than an entirely natural or undisturbed setting. The proposed solar PV facility and associated electrical infrastructure would introduce additional built elements into this landscape, although these would be broadly consistent with the existing mining and energy-related land uses (Donaway Environmental, 2026).

The Visual Impact Assessment identified several landscape features and potentially sensitive receptors within the 10 km PAOI. These include the Groot-Dwars River approximately 3.3 km west of the proposed development, Der Brochen Dam approximately 9.4 km to the north-west, and portions of the Davel Private Nature Reserve and De Berg Nature Reserve to the south. The De Berg Nature Reserve forms part of a designated Ramsar site, while the surrounding mountainous terrain includes elevated areas of scenic and recreational value (Donaway Environmental, 2026).

Potentially sensitive visual receptors include scattered farmsteads, a trout farm, two accommodation establishments and two small villages situated to the north of the proposed development. One village is located approximately 1.8 km north-east of the proposed PV facility, although existing mining infrastructure separates the settlement from the development footprint. A second village is located approximately 7.2 km to the north. Users of surrounding roads and visitors

to conservation and recreational areas may also experience views towards portions of the proposed infrastructure (Donaway Environmental, 2026).

The specialist identified a prominent mountain peak associated with the 9 Peaks Challenge approximately 4.3 km south of the proposed Project. Although this feature contributes to the scenic and recreational character of the broader landscape, tourism activity within the immediate area is relatively limited. The Visual Impact Assessment indicated that only certain elevated areas within the surrounding nature reserves may have theoretical views towards the proposed development, with intervening landforms, distance and existing infrastructure reducing the potential for direct visual exposure (Donaway Environmental, 2026).

The ZTV analysis indicates that portions of the surrounding landscape may have theoretical views towards the proposed solar PV facility and overhead power line. However, the analysis is based on terrain characteristics and does not account for screening by vegetation, buildings or other infrastructure. Consequently, theoretical visibility does not necessarily correspond with actual visibility or the prominence of the development when viewed from individual receptor locations. Visibility is expected to decrease with distance, particularly beyond approximately 1 km, while the surrounding ridgelines and valleys further restrict views from many locations ((Donaway Environmental, 2026).

The theoretical visibility of the associated overhead power line is illustrated in **Figure 11-28**.

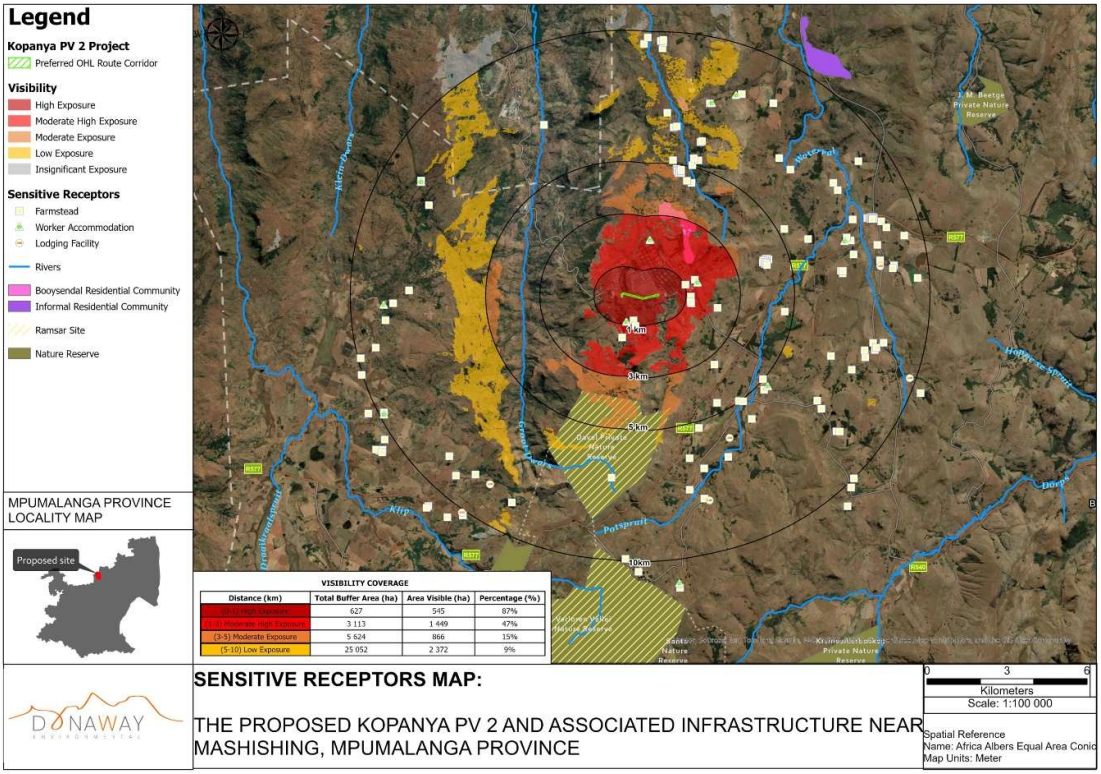


Figure 11-28: Zone of Theoretical Visibility of the Proposed Overhead Power Line

The specialist assessed the overall landscape sensitivity as Moderate, with receptor sensitivity ranging from Low to Moderate. The VAC of the surrounding landscape was classified as High because of the strong topographic containment and existing vegetation. Accordingly, while the mountainous landscape possesses scenic qualities, the proposed development's location within an established mining environment and its avoidance of prominent skyline positions reduce its susceptibility to significant visual change (Donaway Environmental, 2026).

11.15.3 Key Specialist Findings and Conclusions

The Visual Impact Assessment undertaken by Donaway Environmental (2026) considered the visual characteristics and sensitivity of the receiving environment associated with the proposed Project, including the solar PV facility and associated overhead power line. The assessment examined landscape character, landscape sensitivity, visual exposure, sensitive receptors, VAC and the influence of existing infrastructure on the visual character of the surrounding landscape.

The proposed Project is situated within a mountainous and highly undulating landscape characterised by prominent ridgelines, steep slopes and valleys. The surrounding landscape has been influenced by existing mining activities, roads, electrical infrastructure and associated developments, which contribute to its established industrial character. The specialist identified the overall landscape sensitivity as Moderate, reflecting the combination of natural landscape features and existing anthropogenic modifications (Donaway Environmental, 2026).

The specialist identified generally High VAC within the receiving environment, primarily attributable to the mountainous topography, intervening ridgelines, existing vegetation and the spatial arrangement of the proposed development. The location of the proposed solar PV facility within a valley and midslope setting, rather than along prominent ridgelines or skyline positions, contributes to the natural screening provided by the surrounding terrain. Existing mining infrastructure and power lines also influence the visual character of the landscape and the degree of contrast associated with additional infrastructure (Donaway Environmental, 2026) (Donaway Environmental, 2026).

The assessment considered sensitive visual receptors within the surrounding landscape, including residential areas, transport routes and other locations from which views towards the proposed development may be available. The specialist evaluated these receptors in relation to viewing distance, topographical screening, vegetation cover and existing landscape character. No significant tourism nodes were identified as being directly affected by the proposed Project (Donaway Environmental, 2026).

The specialist identified the retention of existing vegetation, minimisation of unnecessary clearing, use of existing access roads and previously disturbed areas, and appropriate positioning of ancillary infrastructure as important design and environmental management considerations. The assessment also recommended that lighting be appropriately designed and shielded, with earthworks and temporary disturbance minimised wherever practicable (Donaway Environmental, 2026).

Donaway Environmental (2026) concluded that the proposed development is acceptable from a visual perspective, subject to implementation of the specialist recommendations. The specialist further recommended consultation with the South African Civil Aviation Authority regarding the proposed development.

11.16 Civil Aviation

11.16.1 Screening Tool and Site Sensitivity Verification Outcomes

The Screening Tool identified the proposed Project area as having Low sensitivity for the Civil Aviation Theme. The Screening Tool further indicates that no major or other civil aviation aerodromes were identified as sensitivity features within the screened Project area.

The proposed Project will be located within the existing BS Mining Right area, which comprises an established mining and industrial environment. The proposed infrastructure will consist primarily of ground-mounted solar PV arrays and associated electrical infrastructure.

Based on the Low Screening Tool sensitivity, the existing land use context and the nature of the proposed development, no material civil aviation-related environmental constraints have been identified. A separate Civil Aviation specialist assessment is therefore not considered necessary for the purposes of the BA. Any applicable technical consultation, notification or approval requirements associated with the final Project design will nevertheless be addressed through the relevant regulatory and design processes.

11.17 Defence

11.17.1 Screening Tool and Site Sensitivity Verification Outcomes

The Screening Tool identified the proposed Project area as having Low sensitivity for the Defence Theme, indicating that no Defence-related sensitivity features requiring further specialist investigation were identified within the screened Project area.

The proposed Project will be located within the existing Booysendal Mining Right area, which comprises an established mining and industrial environment.

Based on the Low Screening Tool sensitivity, the existing land use context and the nature of the proposed solar PV development, no material Defence-related constraints have been identified. A separate Defence specialist assessment is therefore not considered necessary for the purposes of the BA.

11.18 Radio-Frequency Interference

11.18.1 Screening Tool and Site Sensitivity Verification Outcomes

The Screening Tool identified the proposed Project area as having Low sensitivity for theRadio-Frequency Interference (RFI) Theme. No specific RFI sensitivity feature requiring further specialist environmental investigation was identified within the screened Project area.

The proposed Project will be located within the existing Booysendal Mining Right area, within an established mining and industrial environment containing existing electrical, telecommunications and related infrastructure.

Based on the Low Screening Tool sensitivity, the existing land use context and the nature of the proposed solar PV development, no material RFI-related environmental constraints have been identified. A separate RFI specialist assessment is therefore not considered necessary for the purposes of the BA. Any equipment-specific electromagnetic compatibility or telecommunications requirements associated with the final electrical design will be addressed through the detailed engineering and design process.

12 IMPACTS AND RISKS IDENTIFIED INCLUDING THE NATURE, SIGNIFICANCE, CONSEQUENCE, EXTENT, DURATION AND PROBABILITY OF THE IMPACTS, INCLUDING THE DEGREE TO WHICH THESE IMPACTS

12.1 Methodology used in Determining and Ranking the Nature, Significance, Consequences, Extent, Duration and Probability of Potential Environmental Impacts and Risks

Potential impacts are assessed using the methodology described below, in accordance with Appendix 1 of the EIA Regulations, 2014. The assessment addresses construction, operation and decommissioning, as applicable, and considers both pre-mitigation and residual impacts. The approach comprises identification of potentially affected receptors, assessment of impact characteristics, identification of avoidance and mitigation measures, and evaluation of residual

significance.

The assessment will follow a structured approach comprising four key activities:

- Identification and assessment of potential impacts likely to result from the Project activities.
- Prediction of the nature, magnitude, extent, and duration of these impacts, with specific focus on those that may be significant.
- Identification of appropriate mitigation measures to reduce, avoid, or manage the severity or significance of the potential impacts.
- Evaluation of residual impacts to determine the significance of the impact after implementation of mitigation measures.

The assessment of significance was guided by a set of criteria, including:

- Cumulative impacts in the broader environmental and social context.
- Nature of the impact, i.e., whether it is positive, negative, direct, or indirect.
- Extent of the impact, ranging from localised to regional or national scale.
- Probability of occurrence of the impact.
- Reversibility of the impact, i.e., whether it can be restored to pre-impact conditions.
- Irreplaceability of affected resources, considering whether resources lost can be substituted or recovered.
- Potential for mitigation, i.e., the extent to which the impact can be avoided, minimised, or offset.

The evaluation of significance followed a consequence–probability approach:

Consequence = (Duration + Extent + Irreplaceability of resource) × Severity

The overall significance of an impact was then determined using the formula:

Significance = Consequence × Probability

The criteria and rating scales used to assess impacts are provided in **Table 12-1**, with explanations in **Table 12-2**. Ratings presented elsewhere in this BAR must be traceable to these criteria and applied consistently across specialist disciplines

Table 12-1: Criteria and Rating Scales to be used in the Assessment of the Potential Impacts

Criteria	Rating Scales	Notes
Nature	Positive (+)	An evaluation of the effect of the impact related to the proposed development.
	Negative (-)	
Duration	Temporary (1)	The duration of the activity associated with the impact will last 0 - 6 months.
	Short-term (2)	The duration of the activity associated with the impact will last 6-18 months.

Criteria	Rating Scales	Notes
	Medium-term (3)	The duration of the activity associated with the impact will last 18 months - 5 years.
	Long-term (4)	The duration of the activity associated with the impact will last more than 5 years.
Extent	Footprint (1)	The impact only affects the area in which the proposed activity will occur.
	Site (2)	The impact will affect only the development area.
	Local (3)	The impact affects the development area and adjacent properties.
	Regional (4)	The effect of the impact extends beyond municipal boundaries.
	National (5)	The effect of the impact extends beyond more than 2 regional/ provincial boundaries.
	International (6)	The effect of the impact extends beyond country borders.
Severity	Low (1)	Where the impact affects the environment in such a way that natural, cultural, and social functions and processes are minimally affected.
	Moderate (2)	Where the affected environment is altered but natural, cultural, and social functions and processes continue albeit, in a modified way, and valued, important, sensitive, or vulnerable systems or communities are negatively affected.
	High (3)	Where natural, cultural, or social functions and processes are altered to the extent that the natural process will temporarily or permanently cease, and valued, important, sensitive, or vulnerable systems or communities are substantially affected.
Potential for impact on irreplaceable resources	No (0)	No irreplaceable resources will be impacted.
	Yes (1)	Irreplaceable resources will be impacted.
Consequence	Extremely detrimental (-25 to -33)	A combination of extent, duration, intensity, and the potential for impact on irreplaceable resources.
	Highly detrimental (-19 to -24)	
	Moderately detrimental (-13 to -18)	
	Slightly detrimental (-7 to -12)	
	Negligible (-6 to 0)	
	Slightly beneficial (0 to 6)	
	Moderately beneficial (13 to 18)	
	Highly beneficial (19 to 24)	
	Extremely beneficial (25 to 33)	
Probability (the likelihood of the impact occurring)	Improbable (0)	It is highly unlikely or less than 50% likely that an impact will occur.
	Probable (1)	It is between 50 and 70% certain that the impact will occur.
	Definite (2)	It is more than 75% certain that the impact will occur or the impact will occur.
Significance	Very High – negative (-49 to -66)	A function of Consequence and Probability.
	High – negative (-37 to -48)	
	Moderate – negative (-25 to -36)	
	Low – negative (-13 to -24)	
	Neutral - Very low (0 to -12)	
	Low positive (0 to 12)	
	Moderate - positive (13 to 24)	
	High – positive (37 to 48)	
	Very High – positive (49 to 66)	

Table 12-2: Explanation of Assessment Criteria

Criteria	Explanation
Nature	This is an evaluation of the type of effect the construction, operation, and management of the proposed development would have on the affected environment. Will the impact of change on the environment be positive, negative, or neutral?
Extent or Scale	This refers to the spatial scale at which the impact will occur. The extent of the impact is described as footprint (affecting only the footprint of the development), site (limited to the site), and regional (limited to the immediate surroundings and closest towns to the site). The extent of scale refers to the actual physical footprint of the impact, not to the spatial significance. It is acknowledged that some impacts, even though they may be of a small extent, are of Very High importance, e.g., impacts on species of very restricted range. To avoid "double counting," specialists have been requested to indicate spatial significance under "intensity" or "impact on irreplaceable resources" but not under "extent" as well.
Duration	The lifespan of the impact is indicated as temporary, short, medium, and long-term.
Severity	This is a relative evaluation within the context of all the activities and the other impacts within the framework of the Project. Does the activity destroy the impacted environment, alter its functioning, or render it slightly altered?
Impact on irreplaceable resources	This refers to the potential for an environmental resource to be replaced should it be impacted. A resource could be replaced by natural processes (e.g., by natural colonisation from surrounding areas), through artificial means (e.g., by reseeding disturbed areas or replanting rescued species) or by providing a substitute resource, in certain cases. In natural systems, providing substitute resources is usually not possible, but in social systems, substitutes are often possible (e.g., by constructing new social facilities for those who are lost). Should it not be possible to replace a resource, the resource is essentially irreplaceable, e.g., red data species that are restricted to a particular site or habitat to a very limited extent.
Consequence	The consequence of the potential impacts is a summation of the above criteria, namely the extent, duration, intensity, and impact on irreplaceable resources.
Probability of occurrence	The probability of the impact occurring is based on the professional experience of the specialist with environments of a similar nature to the site and/or with similar projects. It is important to distinguish between the probability of the impact occurring and the probability that the activity causing a potential impact will occur. Probability is defined as the probability of the impact occurring, not as the probability of the activities that may result in the impact.
Significance	Impact significance is defined to be a combination of the consequence (as described below) and the probability of the impact occurring. The relationship between consequence and probability highlights that the impact (or impact significance) must be evaluated in terms of the seriousness (consequence) of the impact, weighted by the probability of the impact occurring. In simple terms, if the consequence and probability of an impact are high, then the impact will have a high significance. The significance defines the level to which the impact will influence the proposed development and/or environment. It determines whether mitigation measures need to be identified and implemented and whether the impact is important for decision-making.
Degree of confidence in predictions	Specialists and the environmental team were required to indicate the degree of confidence (low, medium, or high) that there is in the predictions made for each impact based on the available information and their level of knowledge and expertise. The degree of confidence is not considered in the determination of consequence or probability.
Mitigation measures	Mitigation measures are designed to reduce the consequence or probability of an impact or to reduce both consequence and probability. The significance of impacts has been assessed both with mitigation and without mitigation.

12.1.1 Cumulative Assessment

In terms of the EIA Regulations, 2014, cumulative impacts refer to: "*The past, current and reasonably foreseeable future impact of an activity, considered together with the impact of activities associated with that activity, that in itself may not be significant, but may become significant when added to the existing and reasonably foreseeable impacts eventuating from similar or diverse activities.*"

The cumulative impact assessment considers the proposed Project together with existing, authorised and reasonably foreseeable developments that may affect the same environmental and social receptors. Particular attention is given to habitat fragmentation, watercourse condition, avifaunal risks associated with electrical infrastructure, visual change and the combined effects of mining and renewable energy development. The significance of cumulative effects must be supported by the relevant specialist findings and assessed against the criteria in Section 12.1.

The spatial and temporal scope of each cumulative assessment should be appropriate to the receptor concerned. Where a specialist has not provided a cumulative rating, this limitation must be identified rather than assigning an unsupported significance score.

12.2 The Positive and Negative Impacts that the Proposed Activity (in Terms of the Initial Site Layout) and Alternatives will have on the Environment and the Community that may be Affected

The identification of potential positive and negative impacts was informed by the proposed Project activities, the existing environmental and socio-economic baseline, the alternatives assessment and the findings of the specialist investigations. These investigations identified environmental sensitivities associated with soils and agricultural resources, terrestrial biodiversity, avifauna, wetlands and aquatic biodiversity, hydropedological functioning, heritage and palaeontological resources, and the visual environment. The potential implications for air quality, noise, traffic and socio-economic conditions were also considered by the EAP.

The proposed Project is located within an established mining environment where portions of the landscape have been modified by mining infrastructure, roads, electricity infrastructure and associated activities. However, the specialist investigations confirmed that the surrounding landscape retains environmental features of importance, including natural and semi-natural grassland, wetlands, drainage features, habitats supporting SCC and hydrologically sensitive soils. The extent of existing disturbance therefore does not eliminate the potential for significant environmental impacts, particularly where infrastructure is located within or adjacent to sensitive features.

12.2.1 Soils and Agricultural Resources

The Soil and Agricultural Compliance Statement identified soils of varying agricultural sensitivity within the proposed Project area, including naturally occurring soils and areas affected by existing disturbance. The assessment considered soil characteristics, land capability, agricultural production

potential and the current land use of the assessed area (The Biodiversity Company, 2026a).

The potential negative impacts relate to vegetation clearing, soil stripping, excavation, trenching, foundation installation and the movement of construction vehicles and machinery. These activities may result in soil compaction, loss of topsoil, deterioration of soil structure, increased erosion and localised contamination. The establishment of permanent infrastructure may also reduce the availability of affected land for other potential uses during the operational life of the proposed Project.

The proposed Project does not directly increase agricultural production potential. However, its location within an existing mining environment, together with the opportunity to utilise previously disturbed land, may reduce the extent of additional disturbance to relatively undisturbed soils. The agricultural specialist concluded that the residual agricultural impact would be Low following implementation of appropriate soil management and rehabilitation measures (The Biodiversity Company, 2026a).

12.2.2 Terrestrial Biodiversity, Flora and Fauna

The Terrestrial Biodiversity Assessment identified four habitat categories within the assessed landscape, namely Modified habitat, Alien Stands, Disturbed Grassland and Water Resources. These habitats exhibit varying levels of SEI, with Modified habitat generally classified as Very Low, Alien Stands as Low, Disturbed Grassland as Medium and Water Resources as High SEI (The Biodiversity Company, 2026b).

The negative impacts relate to vegetation clearing, habitat loss and fragmentation, disturbance and displacement of fauna, potential fauna mortality and the introduction or spread of alien invasive plants. These impacts are particularly relevant during construction, when vegetation clearing and ground disturbance will be most extensive. During operation, the presence of infrastructure and associated maintenance activities may contribute to habitat fragmentation, edge effects and continued disturbance.

The significance of the potential impacts varies according to the condition and ecological importance of the affected habitat. Disturbance within previously modified areas is generally of lower ecological significance than disturbance within remaining grassland and Water Resources habitat. The potential loss or fragmentation of these habitats must also be considered in the context of cumulative habitat transformation within the broader landscape.

The proposed Project does not provide a direct positive biodiversity impact. Nevertheless, the rehabilitation of temporarily disturbed areas, control of alien invasive plants and protection of retained natural habitat may contribute to improved local environmental management, provided that these measures are effectively implemented (The Biodiversity Company, 2026b).

12.2.3 Avifauna

The Avifaunal Assessment recorded 119 bird species within the assessed landscape, including five

confirmed SCC, namely *Podica senegalensis* (African Finfoot), *Gyps coprotheres* (Cape Vulture), *Promerops gurneyi* (Gurney's Sugarbird), *Alcedo semitorquata* (Half-collared Kingfisher) and *Aquila rapax* (Tawny Eagle). The specialist identified differences in avifaunal sensitivity between habitat types, with remaining natural habitat and Water Resources habitat retaining particular importance for avifaunal movement, foraging and breeding (The Biodiversity Company, 2026c).

Potential negative impacts during construction include habitat loss, vegetation clearing, displacement, disturbance of breeding activities, noise and increased human and vehicle activity. During operation, potential impacts include collision and electrocution associated with electrical infrastructure, together with disturbance arising from maintenance activities, fencing and vehicle movements.

The preliminary infrastructure arrangement was identified as a particular consideration, with approximately 0.29 ha of High SEI Water Resources habitat overlapping the preliminary access road and overhead power line corridor. The specialist recommended avoidance of this overlap through layout refinement. Accordingly, the environmental acceptability of the final infrastructure arrangement remains dependent on confirmation that the identified sensitivity has been appropriately addressed (The Biodiversity Company, 2026a).

The proposed Project does not provide a direct positive avifaunal impact. However, the implementation of bird-sensitive infrastructure design, protection of sensitive habitat and operational monitoring may reduce the potential for adverse effects.

12.2.4 Wetlands and Aquatic Biodiversity

The Wetland Functional and Impact Assessment identified four wetland hydrogeomorphic units within the broader PAOI, comprising an unchannelled valley-bottom wetland, two seep wetlands and a channelled valley-bottom wetland. Non-perennial drainage features and artificial wet areas were also identified, with two wetland systems considered potentially at risk from the proposed Project (The Biodiversity Company, 2026d).

The potential negative impacts relate to changes in surface runoff, erosion, sediment transport, water quality deterioration and interference with natural hydrological connectivity. Construction activities may result in increased sediment mobilisation and accidental pollution, while permanent infrastructure may alter the distribution and movement of runoff where drainage pathways are obstructed or concentrated.

The significance of these impacts depends on the location of infrastructure relative to delineated aquatic features and the effectiveness of the prescribed avoidance and management measures. The specialist determined that the relevant post-mitigation water use risks would be Low, provided that the assessed avoidance assumptions and recommended measures are implemented (The Biodiversity Company, 2026d).

12.2.5 Hydropedology

The Hydropedological Assessment identified recharge, recharge-slow and responsive-wet hydropedological conditions across the assessed hillslopes. The landscape is predominantly characterised by recharge soils, while lower-lying valley-bottom positions contain soils associated with prolonged saturation and responsive hydrological conditions (The Biodiversity Company, 2026e).

The potential negative impacts relate to soil compaction, surface sealing, reduced infiltration, increased surface runoff and interruption of subsurface lateral and return flow pathways. These impacts may arise during construction and persist locally during operation where roads, foundations and other infrastructure alter existing soil-water relationships.

The specialist estimated a reduction in groundwater recharge of approximately 1%–3%, together with a marginal increase in surface runoff. Although these changes may affect localised hydrological processes, the specialist concluded that they are not expected to materially affect broader catchment functioning following implementation of the recommended measures (The Biodiversity Company, 2026e).

12.2.6 Heritage and Palaeontological Resources

The Heritage Impact Assessment considered the potential effects of the proposed Project on archaeological, historical and other heritage resources within the assessed development area. The assessment did not identify known surface heritage resources within the assessed footprint, while palaeontological sensitivity was identified as Low to Insignificant (Digby Wells Environmental, 2026).

The potential negative impact relates to disturbance of previously unidentified heritage or palaeontological resources during excavation, trenching and other ground-disturbing activities. Although the likelihood of encountering such resources is considered limited based on the available findings, the possibility cannot be excluded.

The proposed Project does not provide a direct positive heritage impact. However, the specialist assessment provides a basis for identifying heritage constraints and ensuring that any unexpected discoveries are appropriately managed.

12.2.7 Visual Environment

The Visual Impact Assessment (VIA) identified a mountainous and highly undulating landscape characterised by ridgelines, steep slopes and valleys. The surrounding environment has already been influenced by mining activities, roads and electrical infrastructure, which have modified portions of the natural landscape character (Donaway Environmental, 2026).

The potential negative impacts relate to the introduction of PV arrays, electrical infrastructure, an overhead power line and ancillary facilities into the landscape. Construction activities may result in temporary visual intrusion through earthworks, exposed soils, machinery, stockpiles and temporary infrastructure, while the permanent facility will remain visible from certain locations during

operation.

The specialist identified Moderate overall landscape sensitivity and generally High Visual Absorption Capacity, influenced by the mountainous topography and existing vegetation. The valley and midslope positioning of the proposed facility reduces the potential for extensive skyline intrusion, while the existing mining infrastructure moderates the visual contrast associated with the proposed development (Donaway Environmental, 2026).

12.2.8 Air Quality, Noise, Traffic and Socio-Economic Environment

Construction activities may generate temporary dust, vehicle emissions, noise and increased traffic associated with earthworks, material deliveries, machinery and workforce transport. These impacts will occur within an existing mining environment where industrial traffic, noise and emissions already form part of the baseline conditions. The incremental effects are therefore anticipated to be predominantly temporary and localised, subject to appropriate management.

The positive socio-economic impacts relate to renewable electricity generation, temporary employment opportunities, procurement of goods and services and potential improvements in electricity supply resilience for BS Mine. Operational employment opportunities will be more limited than those available during construction, although maintenance, security and specialist support services may provide ongoing opportunities.

Potential negative socio-economic effects include elevated employment expectations, recruitment disputes and temporary pressures associated with construction activities. These aspects have been considered by the EAP based on the nature and scale of the proposed Project and the available contextual information, rather than through a dedicated Project-specific social impact assessment.

12.2.9 Comparison of the Proposed Project and Alternatives

The alternatives assessment identified four potential development sites within the broader BS Mine environment. Site 4 was selected as the preferred location based on its technical suitability, available development area, proximity to the intended electricity connection point and the constraints associated with the other sites. The detailed specialist investigations subsequently focused on the preferred site and the proposed infrastructure arrangement.

The No-Go Alternative would avoid the direct environmental disturbance associated with construction and operation of the proposed Project. However, it would also result in the loss of the anticipated renewable electricity generation, electricity supply diversification and associated employment and procurement opportunities.

Table 12-3: Summary of Potential Positive and Negative Impacts

Environmental Aspect	Positive Impacts	Negative Impacts
Soils and agricultural resources	Potential rehabilitation of temporary disturbance	Soil compaction, erosion, topsoil loss and reduced land capability
Terrestrial biodiversity	Potential rehabilitation and alien invasive plant control	Habitat loss, fragmentation, vegetation clearing and fauna disturbance
Avifauna	No material direct positive impact identified	Habitat disturbance, displacement, collision and electrocution

Environmental Aspect	Positive Impacts	Negative Impacts
Wetlands and aquatic biodiversity	No material direct positive impact identified	Changes to runoff, sedimentation, water quality and hydrological connectivity
Hydropedology	No material direct positive impact identified	Reduced infiltration, altered recharge and changes to subsurface flow
Heritage and palaeontology	No material direct positive impact identified	Potential disturbance of previously unidentified resources
Visual environment	No material direct positive impact identified	Changes to landscape character and visual exposure
Air quality, noise and traffic	No material direct positive impact identified	Temporary dust, emissions, noise and increased traffic
Socio-economic environment	Renewable electricity, employment and procurement	Employment expectations and temporary social pressures

The impacts summarised above are assessed in greater detail in Section 12.7, which presents the relevant mitigation measures and residual impact significance ratings, as reflected in the consolidated impact assessment tables.

12.3 The Possible Mitigation Measures that could be Applied and the Level of Risk

The identification of mitigation measures has been informed by the findings and recommendations of the specialist investigations, the environmental sensitivities identified within the proposed Project area and the nature of the proposed development activities. Mitigation has been considered throughout the planning and design, construction, operational and decommissioning phases, with the objective of avoiding or reducing adverse environmental and socio-economic impacts to acceptable levels.

The assessment follows the mitigation hierarchy, with priority given to avoidance of sensitive environmental features through appropriate layout selection and micro-siting. Where impacts cannot reasonably be avoided, measures have been identified to minimise the extent, duration and severity of disturbance, followed by rehabilitation and ongoing environmental management. The proposed mitigation measures have been incorporated into the EMPr and are reflected in the post-mitigation significance ratings.

12.3.1 Soils and Agricultural Resources

The mitigation measures relate to minimising the disturbance footprint, restricting vehicle movements to designated routes, retaining and managing topsoil, preventing unnecessary compaction and implementing erosion controls. Temporary construction areas should be rehabilitated following completion of construction, with suitable soil material reinstated to support vegetation establishment.

The agricultural specialist concluded that the residual agricultural impact would be Low following implementation of the recommended soil management and rehabilitation measures. The effectiveness of these measures will depend on appropriate demarcation of construction areas, protection of retained soils and progressive rehabilitation of disturbed areas (The Biodiversity Company, 2026a).

12.3.2 Terrestrial Biodiversity, Flora and Fauna

The terrestrial biodiversity specialist recommends prioritising development within areas of lower SEI, particularly Modified habitat and Alien Stands, while avoiding or minimising disturbance to remaining grassland and Water Resources habitat. A pre-construction ecological walkdown should be undertaken to identify protected plants, SCC and sensitive habitat features requiring protection.

Construction activities should be confined to the authorised development footprint, with clearly demarcated no-go areas, progressive vegetation clearing, appropriate fauna protection measures and implementation of an Alien and Invasive Plant Management Plan. Temporary disturbance should be rehabilitated using suitable indigenous vegetation, with monitoring and corrective action where rehabilitation is unsuccessful (The Biodiversity Company, 2026b).

Although the recommended measures can reduce the significance of individual impacts, cumulative habitat transformation and fragmentation remain relevant. The specialist's cumulative findings should therefore be considered separately from the residual significance of individual construction and operational impacts.

12.3.3 Avifauna

The avifaunal specialist recommends avoiding High SEI Water Resources habitat and prioritising development within Very Low and Low SEI areas. Particular attention is required for the preliminary access road and overhead power line corridor, which overlap approximately 0.29 ha of High SEI Water Resources habitat. The specialist recommends avoiding this overlap through layout refinement (The Biodiversity Company, 2026c).

Additional measures include pre-construction ecological and avifaunal walkdowns, protection of active nests and breeding areas, bird-sensitive electrical design, collision and electrocution prevention, management of construction disturbance and monitoring of avifaunal mortality. The specialist recommends annual avifaunal monitoring with seasonal rotation during construction and the first three years of operation, supported by adaptive management where necessary.

The avifaunal specialist concludes that the proposed Project's impacts can generally be reduced to Neutral or Very Low Negative significance through implementation of the recommended measures. This conclusion remains subject to confirmation of the preliminary layout and associated activities, particularly where infrastructure overlaps sensitive habitats (The Biodiversity Company, 2026c).

12.3.4 Wetlands and Aquatic Biodiversity

The mitigation measure is avoidance of delineated wetlands and their prescribed buffers. The specialist assessment identifies a 20 m post-mitigation buffer for wetlands and a 15 m buffer for the non-perennial drainage feature. These distances should be confirmed against the final approved specialist recommendations and development layout before construction (The Biodiversity Company, 2026d).

Construction activities, temporary facilities, stockpiles, refuelling areas and other potentially

polluting activities should be located outside sensitive aquatic features and their applicable buffers. Stormwater management should maintain natural drainage connectivity, prevent concentrated runoff and erosion, and minimise sediment transport towards downstream receiving environments.

The wetland specialist assessed the residual risks associated with the proposed Project as Low, provided that the prescribed avoidance and management measures are implemented. These ratings were determined using the DWS RAM and should not be directly compared with the BAR's numerical impact significance ratings (The Biodiversity Company, 2026d).

12.3.5 Hydropedology

The hydropedological specialist recommends minimising soil compaction and unnecessary surface sealing, maintaining vegetative cover and preserving natural surface and subsurface drainage pathways. Stormwater management should promote infiltration and the dispersion of runoff rather than creating concentrated flow paths.

Additional measures include vegetated buffer strips, appropriate green engineering stormwater infrastructure and rehabilitation of compacted or disturbed soils. Sanitation infrastructure should avoid responsive-wet soils, and untreated wastewater should not be discharged into the surrounding catchment.

The specialist concluded that the overall hydropedological impact could be reduced from Medium before mitigation to Low following implementation of the recommended measures. The predicted changes to recharge and runoff are considered manageable within the broader hillslope hydrological system.

12.3.6 Heritage and Palaeontological Resources

The mitigation measures relate to restricting ground disturbance to the assessed development footprint and implementing the recommended Chance Find and Fossil Find Procedures. Contractors should receive appropriate heritage awareness training before construction activities commence.

Where previously unidentified archaeological material, graves, human remains or fossils are encountered, work in the immediate area should cease until the find has been assessed and the appropriate specialist or heritage authority has provided direction. These measures are intended to prevent or minimise disturbance to heritage resources that may not have been identified during the field assessment (Digby Wells Environmental, 2026).

12.3.7 Visual Environment

The Visual Impact Assessment recommends limiting vegetation clearing, using previously disturbed areas for temporary infrastructure where practicable, controlling dust and construction lighting, and rehabilitating temporary construction areas. Operational lighting should be restricted to safety and security requirements and directed to minimise light spill into the surrounding landscape.

The mountainous terrain and existing mining infrastructure provide some visual screening and reduce the contrast associated with the proposed development. The specialist concludes that the

anticipated visual impacts can be reduced to Low residual significance through implementation of the recommended mitigation measures (Donaway Environmental, 2026).

12.3.8 Air Quality, Noise, Traffic and Socio-Economic Environment

Mitigation measures for construction-related air quality, noise and traffic impacts should include dust suppression, maintenance of machinery and access roads, enforcement of speed limits, appropriate scheduling of deliveries and restriction of unnecessary noise-generating activities. Construction traffic should be coordinated with existing mine operations to minimise congestion and disruption.

Socio-economic management should include transparent recruitment and procurement processes, communication regarding the temporary nature of construction employment and use of established stakeholder engagement and grievance mechanisms. These measures are intended to manage employment expectations and other potential social pressures associated with construction activities.

The EAP assessment anticipates that the residual negative impacts associated with these aspects will generally be temporary and localised, while the positive employment, procurement and renewable energy benefits will remain.

12.4 Motivation where no Alternative Sites were Considered

The proposed Project is intended to generate renewable electricity primarily for use by BS Mine. The identification of a suitable development location was therefore influenced by the proximity of the proposed facility to the Mine's existing electricity infrastructure, the availability of sufficient land, terrain suitability, environmental constraints and the technical feasibility of connecting the facility to the intended electricity supply network.

As described in Section 7 of this Report, four potential development sites were considered during the initial site selection process. These alternatives were evaluated in relation to their technical suitability and the constraints associated with the broader BS Mine environment. Site 4 was identified as the preferred development location based on its favourable terrain, available development area and proximity to the intended electricity connection point. The other sites presented a combination of constraints, including proximity to watercourses, existing infrastructure, insufficient available development area, greater connection distances and heritage considerations.

The site selection process therefore considered alternative development locations within the broader mining environment. However, the detailed specialist assessments primarily evaluated the selected development area and the proposed infrastructure layout, rather than undertaking separate comparative impact assessments for all four sites. The identification of Site 4 as the preferred location provided the basis for the subsequent site-specific environmental investigations and consideration of the environmental suitability of the proposed development.

The decision to focus the detailed environmental assessment on Site 4 was informed by the

preliminary site selection process and the technical requirements of the proposed Project. This approach enabled the specialist investigations to concentrate on the environmental sensitivities and potential impacts associated with the preferred location, including the identification of areas requiring avoidance, protection or further layout refinement.

The No-Go Alternative has also been considered and represents the option of not proceeding with the proposed Project. Under this alternative, the direct environmental disturbance associated with the development would be avoided, but the anticipated renewable electricity generation, electricity supply diversification and associated socio-economic benefits would not be realised.

The selection of Site 4 is therefore considered reasonable in the context of the proposed Project's purpose, technical requirements and identified environmental constraints. Nevertheless, the final development layout must respond to the site-specific sensitivities identified by the specialists, and the conclusions of the assessment remain dependent on the final infrastructure arrangement being consistent with the assessed development footprint.

12.5 Statement Motivating the Alternative Development Location within the Overall Site

The preferred development location within the overall BS Mine area was identified through consideration of technical feasibility, available development area, proximity to existing electricity infrastructure and environmental constraints. Site 4 was selected as the preferred location because it provides suitable terrain and sufficient land to accommodate the proposed solar PV facility and associated infrastructure, while offering a comparatively favourable connection to the intended electricity supply network.

The selection of the preferred location must also be considered in relation to the environmental sensitivities identified through the specialist investigations. Although the proposed Project is located within an existing mining environment, the assessed landscape contains areas of varying ecological, hydrological and visual sensitivity. The preferred location is therefore not considered environmentally unconstrained, and the final positioning of infrastructure must take account of the findings and recommendations of the relevant specialists.

The soil and agricultural assessment identified a combination of naturally occurring and previously disturbed soils, with varying agricultural sensitivity and land capability. The use of previously disturbed areas, where technically feasible, provides an opportunity to limit additional soil disturbance and reduce the extent of development within relatively undisturbed portions of the site (The Biodiversity Company, 2026a).

The terrestrial biodiversity and avifaunal assessments identified Modified habitat and Alien Stands as comparatively lower-sensitivity areas, while Disturbed Grassland and Water Resources habitat retain greater ecological importance. These findings support the preferential placement of infrastructure within lower-sensitivity areas, subject to the technical requirements of the proposed Project and the avoidance of sensitive habitat features (The Biodiversity Company, 2026b; The

Biodiversity Company, 2026c).

The wetland assessment identified aquatic features and associated buffers that require protection. The hydropedological assessment similarly identified predominantly recharge-dominated hillslopes, with more sensitive responsive-wet soils concentrated in lower-lying valley-bottom positions. These findings indicate that the environmental suitability of individual infrastructure locations is influenced by their proximity to wetlands, drainage features and hydrologically sensitive soils, as well as their potential to affect natural surface and subsurface flow pathways (The Biodiversity Company, 2026d; The Biodiversity Company, 2026e).

The Visual Impact Assessment identified that the mountainous terrain and existing mining infrastructure influence the visual character and exposure of the preferred site. The proposed PV facility is positioned within a landscape already affected by mining activities, with its valley and midslope location providing some topographic screening and reducing the potential for extensive skyline intrusion (Donaway Environmental, 2026).

Notwithstanding these advantages, the avifaunal assessment identified an approximately 0.29 ha overlap between the preliminary access road and overhead power line corridor and High SEI Water Resources habitat. The specialist recommended avoidance of this overlap through layout refinement. This represents an important outstanding consideration in confirming the environmental suitability of the final development layout (The Biodiversity Company, 2026c).

The preferred development location is therefore considered the most suitable of the alternatives identified during the initial site selection process, subject to confirmation that the final layout appropriately responds to the identified environmental constraints. The final positioning of the PV facility, overhead power line, access roads and ancillary infrastructure must remain within the assessed development area and be consistent with the specialist recommendations.

Table 12-4: Motivation for the Preferred Development Location

Consideration	Site Selection and Specialist Findings	Implication for the Preferred Location
Terrain	Site 4 provides favourable terrain for the proposed development	Supports the technical feasibility of the PV facility
Available land	Sufficient area is available to accommodate the proposed infrastructure	Supports development within the selected site
Electricity connection	Site 4 is located close to the intended connection point	Limits the need for a longer electricity connection
Existing land use	The surrounding landscape contains mining and supporting infrastructure	Provides opportunities to utilise previously disturbed areas
Soils and agricultural resources	Naturally occurring and previously disturbed soils occur within the assessed area	Requires minimisation of soil disturbance and appropriate rehabilitation
Terrestrial biodiversity	Modified habitat and Alien Stands are of comparatively lower Site Ecological Importance (SEI), while remaining grassland and Water Resources habitat are more sensitive	Supports preferential use of lower-sensitivity areas
Avifauna	The preliminary infrastructure corridor overlaps approximately 0.29 ha of High SEI habitat	Requires layout refinement and specialist verification
Wetlands and	Wetlands, drainage features and	Requires avoidance of aquatic features

Consideration	Site Selection and Specialist Findings	Implication for the Preferred Location
aquatic biodiversity	prescribed buffers occur within the broader landscape	and protection of natural drainage
Hydropedology	Recharge-dominated hillslopes occur alongside more sensitive lower-lying soils	Requires maintenance of infiltration and hydrological connectivity
Heritage and palaeontology	Heritage constraints were considered during site selection and specialist assessment	Requires compliance with the specialist recommendations
Visual environment	Mountainous terrain and existing mining infrastructure influence visual exposure	Moderates the potential visual effects of the proposed development

12.5.1 Composite Environmental Sensitivity Map

A composite environmental sensitivity map was compiled to provide an integrated spatial representation of the environmental sensitivities identified through the specialist investigations undertaken for the proposed Project. The map consolidates the relevant specialist sensitivity findings, including terrestrial biodiversity, avifauna, wetlands and drainage features, hydropedological characteristics and other identified environmental constraints, to illustrate the distribution and extent of sensitive environmental features within the proposed development area.

The composite map was used to inform the selection and refinement of the preferred development layout, identify areas requiring avoidance or additional management measures, and assess potential interactions between the proposed infrastructure and sensitive environmental features. Particular consideration was given to habitats of High SEI, delineated wetlands and drainage features, their associated scientific buffers, and areas where development could affect ecological or hydrological functioning.

The composite map provides an overview of the environmental constraints identified by the respective specialists and should be interpreted in conjunction with the individual specialist sensitivity maps and reports. Where sensitivities overlap, the relevant specialist recommendations and avoidance requirements must be considered collectively. The composite map does not replace the detailed specialist assessments or their prescribed mitigation measures.

The composite environmental sensitivity map is presented in **Figure 12-1** and has been used to inform the environmental impact assessment and the mitigation and management measures included in the EMPr.

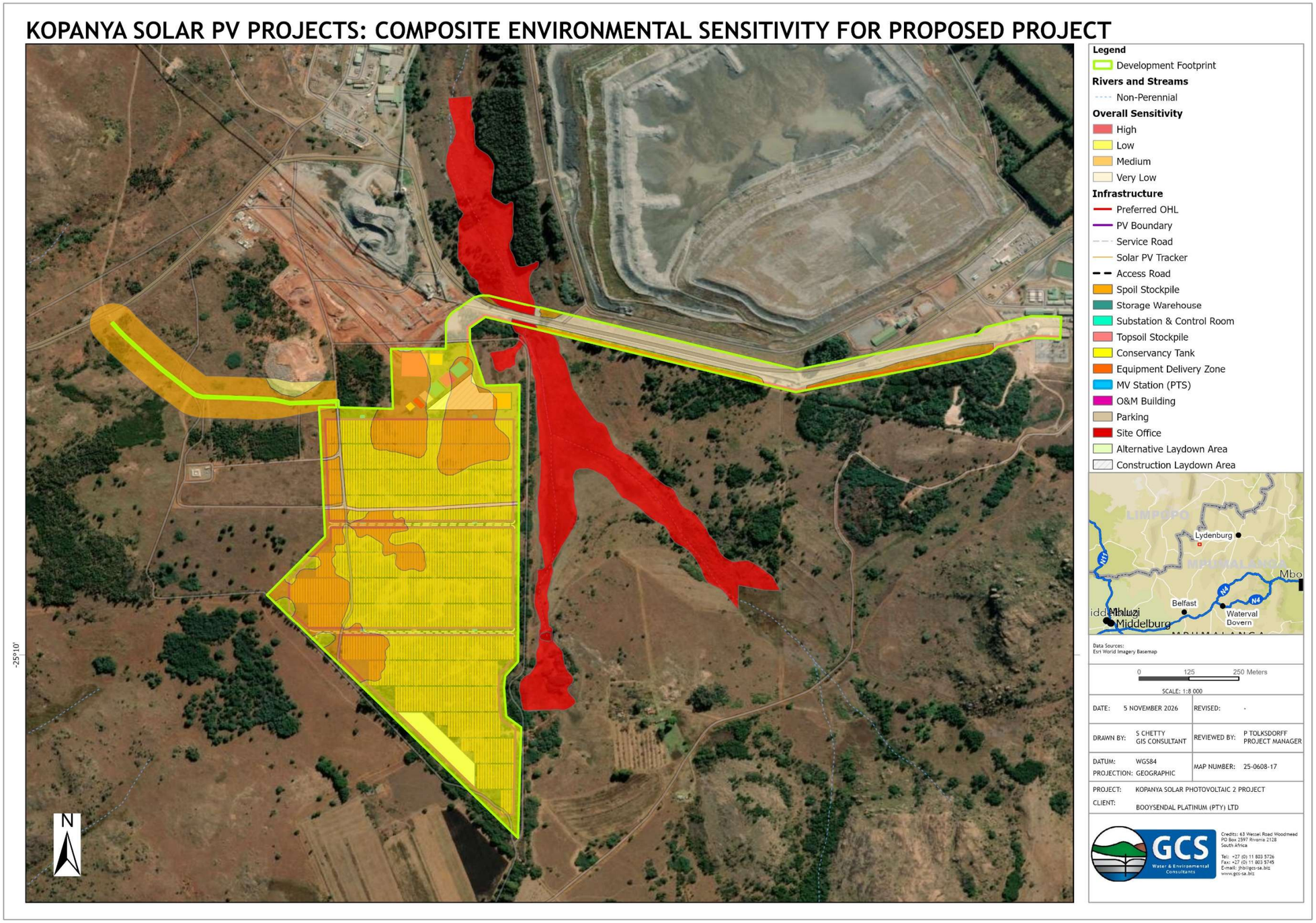


Figure 12-1: Composite Environmental Sensitivity Map for the Proposed Project

12.6 Full Description of the Process Undertaken to Identify, Assess and Rank the Impacts and Risks the Activity will Impose on the Preferred Site (in Respect of the Final Site Layout Plan) Through the Life of the Activity

The environmental impact assessment process was undertaken to identify, evaluate and rank the potential environmental and socio-economic impacts and risks associated with the proposed Project throughout its life cycle. The assessment considered the planning and design, construction, operational and decommissioning phases, together with relevant cumulative impacts. The process was informed by the project description, alternatives assessment, proposed development layout, available environmental baseline information and specialist investigations.

The assessment commenced with identification of the proposed activities and associated infrastructure, including the PV arrays, electrical infrastructure, overhead power line, access roads, construction areas and ancillary facilities. These activities were considered in relation to their potential to alter the physical, biological, hydrological, heritage, visual and socio-economic characteristics of the receiving environment.

The specialist investigations established the environmental baseline and identified the receptors and sensitivities potentially affected by the proposed development. The findings were used to identify direct and indirect impact pathways, determine the potential consequences of the proposed activities and establish the mitigation measures required to avoid or reduce adverse impacts.

12.6.1 Identification of Environmental Impacts and Risks

Potential impacts were identified by considering the interaction between the proposed Project activities and the environmental sensitivities of the receiving environment. This included consideration of the physical disturbance associated with construction, the permanent presence of infrastructure during operation, routine maintenance activities and potential disturbance during decommissioning.

The assessment considered direct impacts occurring within the development footprint, indirect impacts extending beyond the immediate footprint and cumulative impacts arising from the proposed Project in combination with existing and reasonably foreseeable developments. Positive impacts, particularly those associated with renewable electricity generation, employment and procurement, were also identified.

The specialist investigations provided discipline-specific input into the identification of impacts. The soil and agricultural assessment considered soil disturbance and agricultural production potential, while the terrestrial biodiversity and avifaunal assessments considered habitat loss, fragmentation, species disturbance and infrastructure-related mortality. The wetland and hydropedological assessments considered water quality, runoff, infiltration, groundwater recharge and hydrological connectivity. The heritage assessment considered potential disturbance of heritage resources, while the Visual Impact Assessment evaluated landscape character, visual exposure and receptor sensitivity.

12.6.2 Assessment of Impact Significance

The identified impacts were evaluated using the impact assessment methodology adopted for the BAR. The assessment considered the characteristics of each impact, including its nature, extent, duration, severity, probability and potential effect on irreplaceable resources, as applicable to the adopted methodology.

The consolidated numerical assessment material applies the following calculation:

$$\text{Consequence} = (\text{Duration} + \text{Extent} + \text{Irreplaceability}) \times \text{Severity}$$

$$\text{Significance} = \text{Consequence} \times \text{Probability}$$

Negative impacts are represented by negative significance values, while positive impacts are represented by positive values. The resulting significance ratings are interpreted using the classification thresholds established in the BAR methodology.

The assessment was undertaken before and after mitigation to determine the extent to which the recommended measures would reduce the significance of identified impacts. Pre-mitigation ratings represent the anticipated significance of impacts without the prescribed management measures, while post-mitigation ratings reflect the anticipated residual significance following implementation of those measures.

The numerical specialist ratings were retained where provided and were not recalculated or normalised by the EAP. This approach preserves the specialist assessment findings and avoids introducing discrepancies between the specialist reports and the consolidated impact assessment.

12.6.3 Specialist Assessment Methodologies

The specialist investigations applied methodologies appropriate to their respective disciplines. These methodologies were selected to address the environmental characteristics and potential impacts relevant to each specialist theme.

Table 12-5: Summary of Specialist Assessment Methodologies

Specialist Discipline	Assessment Approach
Soils and agricultural resources	Soil classification, agricultural sensitivity verification, land capability and production potential assessment
Terrestrial biodiversity	Habitat delineation, flora and fauna surveys, identification and consideration of Species of Conservation Concern, and assessment of Site Ecological Importance.
Avifauna	Seasonal surveys, species observations, habitat sensitivity assessment and evaluation of construction and infrastructure-related risks
Wetlands and aquatic biodiversity	Wetland delineation, hydrogeomorphic classification, ecological condition and functionality assessment, buffer determination and Department of Water and Sanitation Risk Assessment Matrix
Hydropedology	Level 2 hillslope assessment, soil profile interpretation and conceptualisation of recharge, lateral flow and responsive-wet conditions
Heritage and palaeontology	Heritage baseline review, field assessment, identification of heritage sensitivities and consideration of palaeontological resources
Visual environment	Landscape character assessment, visual sensitivity, visibility, Visual Absorption Capacity and visual intrusion assessment

The wetland assessment applied the DWS RAM to determine water use risk ratings. These ratings are based on a methodology distinct from the numerical impact significance assessment used for other

environmental components and are therefore reported separately.

The Visual Impact Assessment primarily provides narrative and qualitative conclusions regarding visual impacts, while the soil and agricultural, terrestrial biodiversity, avifaunal, hydropedological and heritage assessments include discipline-specific significance findings. The EAP assessment of air quality, noise, traffic and socio-economic effects was undertaken using the available project information and the existing mine-influenced receiving environment, as no dedicated Project-specific specialist assessments were undertaken for these components.

12.6.4 Mitigation and Residual Impact Assessment

Following identification and assessment of potential impacts, mitigation measures were identified in accordance with the mitigation hierarchy. Priority was given to avoiding impacts through appropriate layout selection and micro-siting, followed by measures to minimise unavoidable disturbance, rehabilitate affected areas and implement ongoing environmental management and monitoring.

The specialist recommendations were considered in relation to the proposed development layout and incorporated into the EMPr. The residual significance of each impact was then assessed on the assumption that the relevant mitigation measures would be effectively implemented.

The residual impact assessment provides the basis for determining whether the anticipated environmental and socio-economic impacts are acceptable and manageable. Where residual impacts remain significant, particularly in relation to cumulative biodiversity effects, these findings must be considered in the overall environmental impact statement and EAP's reasoned opinion.

12.6.5 Cumulative Impact Assessment

Cumulative impacts were assessed by considering the contribution of the proposed Project to existing and reasonably foreseeable development within the surrounding landscape. The assessment considered the existing mining environment, associated infrastructure and other relevant renewable energy developments.

The terrestrial biodiversity and avifaunal assessments identified cumulative habitat transformation and fragmentation as important considerations, while the VIA considered the potential for cumulative visual effects associated with existing mining infrastructure and other developments (The Biodiversity Company, 2026a; 2026c; Donaway Environmental, 2026).

The cumulative assessment also considered potential positive effects associated with renewable electricity generation, investment and procurement opportunities. These benefits were evaluated alongside the potential for increased employment expectations and other temporary socio-economic pressures associated with development activities.

12.6.6 Integration of Specialist Findings and Environmental Management

The findings of the specialist assessments were integrated into the consolidated impact assessment, with the recommended mitigation measures incorporated into the EMPr. The EMPr establishes the

environmental management, monitoring and corrective action requirements applicable throughout the life of the proposed Project.

The final assessment must be based on the confirmed development layout. Where infrastructure placement or proposed activities differ materially from those assessed by the specialists, the relevant assessments must be reviewed to determine whether the impact findings and mitigation measures remain applicable.

Table 12-6: Summary of the Environmental Impact Assessment Process

Assessment Stage	Description	Output
Site selection	Comparison of potential development locations and technical and environmental constraints	Identification of Site 4 as the preferred location
Project definition	Identification of proposed activities and infrastructure	Project description and development layout
Environmental baseline	Characterisation of the receiving environment	Baseline conditions and environmental sensitivities
Specialist investigations	Assessment of environmental components and potential impacts	Specialist reports and recommendations
Impact identification	Identification of direct, indirect and cumulative impacts	Identified impact pathways
Impact significance assessment	Evaluation of impacts before mitigation	Pre-mitigation ratings
Mitigation assessment	Identification of avoidance, minimisation and rehabilitation measures	Mitigation requirements
Residual assessment	Reassessment following mitigation	Post-mitigation ratings
Cumulative assessment	Consideration of combined effects with existing and foreseeable development	Cumulative impact findings
Environmental management	Integration of mitigation and monitoring measures	Environmental Management Programme commitments

The results of the assessment are presented in Section 12.7 and the consolidated impact assessment tables, with the overall environmental implications addressed in the Environmental Impact Statement.

12.7 Assessment of Each Identified Potentially Significant Impact and Risk

The assessment below consolidates the potentially significant impacts identified by the specialist investigations and the EAP for the planning and design, construction, operational and decommissioning phases. The numerical ratings presented in **Table 12-7** to **Table 12-10** should be read with the corresponding specialist assessment matrices, which provide the detailed impact pathways, significance criteria and mitigation measures. Residual ratings are contingent upon the final layout and effective implementation of the EMPr.

12.7.1 Construction Phase

Table 12-7 presents the construction phase impacts and the corresponding pre- and post-mitigation ratings. The detailed specialist assessment matrices and discipline-specific mitigation measures remain available in the supporting specialist reports.

Table 12-7: Construction Phase Impact Assessment Ratings

Specialist Discipline	Impact / Activity	Pre-Mitigation							Post-Mitigation							Confidence / Method
		Duration	Extent	Potential impact on irreplaceable resources	Severity	Consequence	Probability	Significance	Duration	Extent	Severity	Potential impact on irreplaceable resources	Consequence	Probability	Significance	
Soil and Agriculture	Loss or reduction of land capability and agricultural potential associated with construction of the solar photovoltaic (PV) and associated infrastructure	3	2	1	-2	-12	2	-24	2	2	-1	1	-5	2	-10	High
	Recommended Mitigation Measures	• Clearly demarcate the approved construction footprint, no-go areas, access routes, laydown areas and stockpile areas before any vegetation clearing or earthworks commence. • Restrict all disturbance to the approved development footprint and prohibit unnecessary clearing of vegetation outside authorised areas. • Make use of existing access routes as far as reasonably practicable before creating new access routes. • Limit soil disturbance and avoid unnecessary stripping, excavation, grading and compaction of soils. • Strip, handle and stockpile topsoil separately from subsoil and construction material where soil disturbance is unavoidable. • Safeguard topsoil, sand, aggregate and building-material stockpiles against erosion, rain-wash, sediment loss and contamination. • Implement erosion and sediment control measures in areas prone to runoff, erosion or exposed soils. • Prevent uncontrolled stormwater runoff from exposed and disturbed areas and implement the Stormwater Management Plan. • Rehabilitate and stabilise disturbed areas progressively as soon as construction activities are complete in each area. • Lightly rip or till compacted soils around disturbed areas to reduce compaction and promote infiltration and revegetation. • Implement the Alien Invasive Plant Management Plan to prevent the establishment and spread of alien and invasive plant species during construction. • Store fuel, oils, chemicals, cement, paints and hazardous substances in designated, bunded and impermeable areas away from watercourses, wetlands and their scientific buffers. • Prevent soil contamination from hydrocarbons, concrete wash water, chemicals or other construction materials. • Ensure spill kits are available, complete and accessible at all areas where hydrocarbons, chemicals or hazardous substances are stored or used. • Treat or remove contaminated soil immediately following a spill or leak. • Provide sufficient waste bins and skips for general, recyclable and hazardous waste. • Dispose of all waste, including hazardous waste, at appropriately licensed waste management facilities. • Provide adequate sanitation facilities for construction workers, service them regularly and locate them outside watercourses, wetlands, their buffers and responsive soils. • Remove all excess materials, waste, redundant infrastructure and consumables from site upon completion of construction.														
Terrestrial Biodiversity	Loss and fragmentation of habitats, functional ecosystems and vegetation communities	4	2	1	-3	-21	2	-42	4	2	-2	1	-14	1	-14	High
	Recommended Mitigation Measures	• Avoid wetlands and non-perennial drainage lines and their associated scientific buffers as far as possible. The applicable scientific buffers are 20 m for wetlands and 15 m for non-perennial drainage lines, as identified in the Wetland Assessment Report. • Prioritise development within areas classified as Very Low and Low Site Ecological Importance (SEI). • Areas classified as Medium SEI may only be considered where development within Very Low and Low SEI areas is not feasible. • Apply avoidance mitigation through micro-siting of proposed Project infrastructure to avoid sensitive areas, including watercourses and wetland scientific buffers, protected plants, Species of Conservation Concern (SCC), sensitive habitats and faunal movement corridors. • Design infrastructure to avoid or minimise ecological impacts, including the use of low-impact foundation options. Solar panels must be mounted on pile-driven or screw foundations, such as post-support spikes, where feasible. Heavy foundations, including trench-fill or mass concrete foundations, must be avoided where practicable to reduce impacts on soil functioning and biodiversity. • Compile and implement a Stormwater Management Plan, Erosion Management Plan and Rehabilitation Management Plan. An acceptable Rehabilitation Management Plan must be in place before construction commences. • Conduct a pre-construction ecological walkdown of the approved development footprint, during the appropriate flowering and rainfall season, before vegetation clearing or site establishment. • The ecological walkdown must identify provincially or nationally protected plants, SCC, and active nests, burrows or dens. • Where protected species, SCC or active nests, burrows or dens are identified, the applicable avoidance buffers, protection measures and permit requirements must be implemented before construction commences. Vegetation clearing affecting protected plants or SCC may only proceed once the necessary permits have been obtained. • Protected plants that will remain undisturbed must be clearly demarcated using high-visibility markers or flags. Their sensitivity and conservation importance														

Specialist Discipline	Impact / Activity	Pre-Mitigation							Post-Mitigation							Confidence / Method
		Duration	Extent	Potential impact on irreplaceable resources	Severity	Consequence	Probability	Significance	Duration	Extent	Severity	Potential impact on irreplaceable resources	Consequence	Probability	Significance	
		must be communicated through the environmental awareness programme. • Restrict all construction activities to the authorised development footprint, approved access roads and designated laydown areas. • Clearly demarcate the authorised construction footprint and environmental no-go areas before construction commences. Demarcation must be maintained throughout construction using visible barriers, signage or danger tape. • No vegetation clearing, storage of vehicles or equipment, or other construction-related disturbance may occur outside designated and authorised development areas. • Use approved access routes only. Any additional access roads must be approved before use. • Temporary construction infrastructure must be located within designated development areas. Construction buildings should preferably be prefabricated or constructed from reusable or recyclable materials. • Avoid blanket vegetation clearing wherever possible. Selective clearing must be undertaken to retain indigenous vegetation, minimise habitat disturbance and reduce erosion. • Indigenous vegetation must be maintained beneath solar panels, where feasible, to support biodiversity and reduce soil erosion (Beatty et al., 2017; Sinha et al., 2018). • The Environmental Control Officer (ECO) must supervise and oversee vegetation clearing activities to ensure compliance with the approved development footprint and applicable environmental management measures. • Personnel must be prohibited from removing indigenous plants from the Project Area of Influence (PAOI) or introducing alien plant species into the PAOI, except where specifically authorised for rehabilitation purposes. This requirement must be incorporated into the environmental awareness programme and enforced through site rules. • Blasting must be strictly restricted to areas requiring rock excavation where mechanical excavation or minor infrastructure realignments are not reasonably feasible. The justification for blasting must be recorded in the construction method statement. • The blasting footprint, access routes and adjacent habitat no-go areas must be clearly demarcated before drilling commences. All drilling equipment, vehicles and excavated material must remain within designated disturbance areas. • The blasting contractor must design charges, delays and stemming to minimise overbreak and prevent flyrock from extending beyond the authorised footprint. Blast mats must be used where a risk of flyrock affecting adjacent sensitive habitats has been identified. • Blast spoil, equipment and explosives-handling areas must be located outside wetlands, watercourses and their associated buffers. Appropriate sediment controls must be installed where surface runoff could enter these water resources. • Adjacent habitats must be inspected following each blast to identify flyrock or unintended damage, and the findings must be recorded. Where damage occurs, blasting controls must be revised before subsequent blasting, and flyrock debris must be safely retrieved using methods that avoid further habitat disturbance. • Disturbed areas must be progressively stabilised and rehabilitated as soon as they are no longer required for construction activities. Rehabilitation must include reinstatement of natural drainage patterns, replacement of topsoil and revegetation using locally appropriate indigenous species during the next suitable establishment period. • Denuded areas must be revegetated with indigenous vegetation to minimise erosion during rainfall and wind events and reduce the likelihood of encroachment by alien invasive plant species. • The approved Erosion Management Plan and Rehabilitation Management Plan must be implemented throughout construction and rehabilitation activities. • All excess construction materials, waste, equipment and temporary infrastructure must be removed from the PAOI following completion of construction. No temporary construction structures may remain unless specifically authorised for operational use.														
Terrestrial Biodiversity	Introduction and spread of alien invasive plant and animal species	4	3	1	-1	-8	2	-16	3	2	-1	1	-6	1	-6	High
	Recommended Mitigation Measures	• Compile and implement an Alien Invasive Plant Management Plan from the onset of construction. • The plan must include the following: o Identification of affected areas; o Appropriate removal methods; o Follow-up control; o Monitoring; and o Updating of the plan as new information becomes available. • Monitoring of (and associated necessary removals, if any, according to the plan) must occur at least every three months during the entire construction phase, as well as once upon completion of the construction phase. • Implement the Stormwater Management Plan for all developable areas. • Implement the Waste Management Plan. • Temporary storage of domestic waste must be in covered, animal-proof waste bins and/or skips. • Removal of domestic waste on a regular basis (at least every two weeks), no overspill is permitted.														
Terrestrial	Displacement of the indigenous faunal community due	4	3	1	-1	-8	2	-16	3	2	-1	1	-6	1	-6	High

Specialist Discipline	Impact / Activity	Pre-Mitigation							Post-Mitigation							Confidence / Method
		Duration	Extent	Potential impact on irreplaceable resources	Severity	Consequence	Probability	Significance	Duration	Extent	Severity	Potential impact on irreplaceable resources	Consequence	Probability	Significance	
Biodiversity	to habitat loss															
	Recommended Mitigation Measures	• Utilise quiet foundation construction methods wherever possible to minimise noise and vibration, including screw piles or vibration-dampened pile drivers instead of conventional driven piles. • Design roads and road edges to facilitate faunal movement. Roads must be clearly signposted, and speed limits of 40 km/h during daytime and 20 km/h at night must be enforced. • Design fencing to allow the movement of small fauna. Wildlife-permeable fencing, such as ClearVu or similar, must be used, with visibility markers installed to reduce collision risks. • Incorporate openings measuring 20 cm × 20 cm at the bottom of fencing to facilitate the movement of ground-dwelling fauna. These openings must not be positioned adjacent to major roads where they could increase the risk of wildlife-vehicle collisions. • Use solar panels with anti-reflective coatings where technically and commercially feasible. Where anti-reflective panels are not used, suitable reflection-reduction measures, such as non-polarising white tape, must be applied where required to minimise reflection (Bennun et al., 2021). • Clearly demarcate the approved construction footprint, construction zones and environmental no-go areas using visible physical barriers, safety tape and signage rather than painted lines. • Before vegetation clearing, the ECO or appointed environmental representative, accompanied by another individual, must walk through the area to encourage fauna to move into adjacent undisturbed habitats. This must be undertaken immediately before clearing, without causing unnecessary disturbance. • Any tortoises encountered within areas scheduled for clearing must be safely relocated to suitable nearby habitat within the property and PAOI, subject to applicable permit requirements. • Any other fauna threatened by construction activities must be safely relocated to suitable nearby habitat by an appropriately qualified environmental officer or wildlife removal specialist, where necessary and legally permissible. • Minimise the period between vegetation clearing and the commencement of construction to reduce the likelihood of wildlife returning to disturbed areas. • Schedule construction activities during the dry season (May to July), as far as reasonably practicable. Where wet season construction cannot be avoided, construction activities must be restricted to daylight hours. • Undertake construction progressively, focusing on one area at a time rather than clearing or disturbing the entire development footprint simultaneously. This approach must minimise the extent of concurrent disturbance and allow fauna to move into adjacent undisturbed habitats as construction progresses. • Safely relocate any wildlife at risk from construction activities with the assistance of a suitably qualified ECO or wildlife specialist, where required. • Undertake excavations progressively and avoid leaving open excavations unattended wherever practicable. • Open excavations must be covered overnight or provided with suitable escape ramps to prevent fauna from becoming trapped. • Inspect all excavations before backfilling to confirm that no fauna are trapped inside. Any trapped animals must be safely removed by suitably qualified personnel before backfilling proceeds. • Inspect each proposed blast footprint for fauna, occupied burrows, active nests and roosts before drilling or charging commences. All findings must be recorded. • Suspend activities locally where fauna or occupied refuges may be affected and obtain specialist advice regarding avoidance measures or authorised rescue and relocation. Only suitably qualified personnel may handle or relocate animals. • Allow fauna to leave uncharged areas voluntarily through unobstructed escape routes. Animals must not be chased, and occupied burrows must not be sealed. • Restrict blasting to daylight hours. A mandatory wildlife inspection must form part of the blasting contractor's pre-firing clearance procedure, and firing must be delayed where animals remain within the designated blast danger area. • Following the blasting contractor's all-clear, inspect the affected area for injured or dead fauna and record any incidents. Where wildlife casualties occur, the blasting controls must be reviewed and revised, where necessary, before further blasting is undertaken. • Remove all temporary construction infrastructure, equipment, excess materials and waste from the development area following completion of construction. Any areas disturbed by temporary construction activities must be rehabilitated in accordance with the approved Rehabilitation Management Plan.													
Terrestrial Biodiversity	Displacement of the indigenous faunal community (including potential SCC) due to direct mortalities and disturbance (road collisions, noise, dust, light, vibration, and poaching).	4	2	1	-2	-14	2	-28	2	1	-1	1	-4	1	-4	High
	Recommended Mitigation Measures	• Prior to vegetation clearing activities, the area to be cleared must be walked on foot by two individuals to create a disturbance in order for fauna to move off. Disturbance must occur as soon as possible (before vegetation clearing) and no unnecessary disturbance to the area is permitted. • Any tortoises present should be removed from the affected areas before the start of site clearing/construction and safely relocated to suitable habitat within the PAOI. • Any fauna threatened by the construction activities should be removed safely by an appropriately qualified environmental officer or removal specialist. • Construction should take place during the dry season (May to July) as much as is feasible. Where not feasible, wet season construction is permitted, with construction limited to daylight hours. • Safely relocate any wildlife at risk from construction activities with the help of a qualified ECO or specialist.													

Specialist Discipline	Impact / Activity	Pre-Mitigation							Post-Mitigation							Confidence / Method
		Duration	Extent	Potential impact on irreplaceable resources	Severity	Consequence	Probability	Significance	Duration	Extent	Severity	Potential impact on irreplaceable resources	Consequence	Probability	Significance	
		• Limit construction vehicle speeds to 40 km/h to prevent accidents and install appropriate speed control measures and signage. • Driving on access roads at night should be restricted to maximum 20 km/h to reduce or prevent wildlife road mortalities which occur more frequently during this period. • Minimise the time between clearing an area and starting development to prevent wildlife from returning to disturbed sites. • Conduct excavations progressively and do not leave open excavations unattended where avoidable. • Open excavations must be covered overnight or fitted with escape ramps to prevent fauna from becoming trapped. • Excavations must be inspected before backfilling to ensure no fauna are trapped inside. • Focus work on one area at a time to reduce the extent of on-site activities, allowing wildlife to relocate as the proposed Project progresses. This helps smaller animals find refuge in nearby undisturbed areas. • Design outdoor lighting to minimise impacts on wildlife by: o Directing lights downward and away from sensitive areas and using low intensity lighting where possible; o Using baffles, hoods, or louvres; o Avoiding unnecessary lighting near wetlands and natural areas; o Using motion-detection lighting where feasible; and o Avoiding fluorescent and mercury vapour lights where suitable alternatives (such as sodium vapour/yellow lights) are available. • All personnel and contractors must undergo Environmental Awareness Training. A signed attendance register must be retained as proof. The training must include: o Protection of fauna and flora; o Prohibition on hunting, harming, collecting or disturbing animals; o Prohibition on removing indigenous plants; o Prohibition on bringing alien plant species onto site; o Protection of owls, reptiles, tortoises and other commonly persecuted fauna; o Speed limits and road safety; o Waste management; o No-go areas; and o Incident reporting procedures. • All temporary construction infrastructure and materials must be removed upon completion of construction.													
Avifauna	Loss and fragmentation of habitats, functional ecosystems and vegetation communities including SCC and protected species	4	3	2	-2	-24	2	-48	2	2	-1	1	-18	1	-18	High
	Recommended Mitigation Measures	• A pre-clearance avifauna walkdown, coordinated with the pre-construction ecological walkdown where practicable, must be undertaken prior to vegetation clearance to identify active nests, roosts or breeding activity within the development footprint and immediately adjacent areas. • If active nests or breeding activity are identified, the relevant area must be treated as a temporary no-go area and an avifauna specialist must be consulted to recommend an appropriate buffer, timing restriction or permit requirement. • Solar panels should, where feasible, be mounted on pile-driven or screw-type foundations rather than extensive concrete foundations, to reduce soil disturbance and maintain natural soil functioning. • Solar panels with anti-reflective coating should be considered, where technically and commercially feasible, to reduce glare-related disturbance and collision risk. • The final layout must, as far as reasonably practicable, use existing disturbed areas, existing roads and existing access routes to reduce additional habitat disturbance. • Electrical infrastructure must be designed to reduce avifauna collision and electrocution risk. This must include insulation of exposed live components, use of bird-safe designs and installation of bird diverters along the entire overhead powerline route, with particular attention to high-risk sections. • Maintain indigenous vegetation under solar panels where possible (subject to terrestrial specialist recommendation) to ensure biodiversity is maintained and prevent soil erosion. • Compile and implement the Alien Invasive Plant Management Plan. • Implement rotational grazing or mowing to maintain grassland structure for ground-nesting birds. • All areas denuded during construction must be revegetated with indigenous vegetation to prevent erosion and reduce likelihood of alien invasive plant species encroachment. • Utilise topsoil and revegetate all disturbed areas with plant and grass species indigenous to the vegetation type. • Rehabilitate disturbed areas post-construction with indigenous species.													
Avifauna	Loss of avifaunal species	4	3	2	-2	-24	2	-48	2	2	-1	1	-18	1	-18	High
	Recommended Mitigation Measures	• Implement and enforce strict speed limits (40 km/h maximum) on all internal roads to minimise dust and road kills.														

Specialist Discipline	Impact / Activity	Pre-Mitigation							Post-Mitigation							Confidence / Method
		Duration	Extent	Potential impact on irreplaceable resources	Severity	Consequence	Probability	Significance	Duration	Extent	Severity	Potential impact on irreplaceable resources	Consequence	Probability	Significance	
		• Designate specific routes to concentrate traffic and minimise habitat disturbance. • Schedule heavy machinery operations outside peak avifauna activity periods (early morning, dusk). • All construction and maintenance motor vehicle operators must undergo environmental induction including instruction on speed limit compliance and respect for all forms of wildlife. • Provide all personnel with avifauna awareness training. • Consult an avifauna specialist if nesting species are found on-site, during the construction period. • Outside lighting must be minimised and designed to reduce disturbance to fauna. Lighting must be downward-facing, shielded, low intensity where possible, directed away from sensitive habitats, watercourses and natural areas, and motion-detection lighting should be used where feasible. • Conduct annual avifauna surveys (rotate to include seasons) to track displacement and community changes.														
Avifauna	Destruction, degradation and fragmentation of surrounding habitats due to noise pollution	4	3	2	-2	-15	2	-30	2	2	-1	1	-10	1	-10	High
	Recommended Mitigation Measures	• All Project activities must be undertaken with appropriate noise mitigation measures to avoid disturbance to avifauna populations in the region. • Schedule noisy activities during the heat of the day. • Limit construction hours to 06:00-18:00 (avoid dawn chorus and dusk activity). • Use quieter equipment alternatives where available (e.g., hydraulic vs. pneumatic tools). • Implement noise barriers (temporary screens, berms) around high-noise activities. • Maintain equipment to minimise mechanical noise.														
Avifauna	Displacement or emigration of the avifaunal community (including SCC)	4	3	2	-2	-20	2	-40	2	1	-1	1	-10	1	-10	High
	Recommended Mitigation Measures	• Implement and enforce strict speed limits (40 km/h maximum) on all internal roads to minimise dust and road kills. • Designate specific routes to concentrate traffic and minimise habitat disturbance. • Schedule heavy machinery operations outside peak avifauna activity periods (early morning, dusk). • All construction and maintenance motor vehicle operators must undergo environmental induction including instruction on speed limit compliance and respect for all forms of wildlife. • Provide all personnel with avifauna awareness training. • Consult an avifauna specialist if nesting species are found on-site, during the construction period. • Outside lighting must be minimised and designed to reduce disturbance to fauna. Lighting must be downward-facing, shielded, low intensity where possible, directed away from sensitive habitats, watercourses and natural areas, and motion-detection lighting should be used where feasible. • Conduct annual avifauna surveys (rotate to include seasons) to track displacement and community changes.														
Avifauna	Direct mortality from persecution or poaching of avifauna species and collection of eggs	4	2	1	-2	-14	2	-28	2	1	-1	1	-4	1	-4	High
	Recommended Mitigation Measures	• Implement a visitor log and restrict access to authorised personnel only • All personnel must undergo environmental induction regarding avifauna • Provide specific awareness about not harming, collecting, or hunting terrestrial species and owls (which are often persecuted out of superstition) • Display signs to enforce wildlife protection policies • Display signage prohibiting hunting and trapping • Establish clear protocols for reporting and responding to poaching incidents • Maintain records of all incidents and enforcement actions														
Hydropedology	Erosion associated with increased overland flow	3	3	1	-2	-14	2	-28	2	2	-1	1	-5	2	-10	High
	Recommended Mitigation Measures	• Minimise soil compaction and keep the soil covered with residue and vegetative cover; • Infiltration basins or trenches, where necessary, can minimise surface overflows or runoff and allow water that runs off from roofs to settle and re-infiltrate; • Establish vegetated buffer strips and grassed waterways around surface buildings and solar PV infrastructure to filter runoff and protect water bodies from contamination; • Prevent flood damage or concentration of runoff; • Preserve the natural and beneficial functions of the natural drainage system downstream; • Preserve and enhance stormwater quality; • Attenuate the difference between pre- and post-development flows; • Divert stormwater and surface runoff from buildings, roads, and parking areas via green engineering stormwater management dissipation infrastructure, wherever possible; • Prevent the disposal of wastewater into the catchment system or surrounding areas; and Adhering to the recommended footprint buffers and wetland buffers proposed by the wetland specialist for the Project should reduce water losses from the catchment. Sanitation systems must not be located in responsive soils,														

Specialist Discipline	Impact / Activity	Pre-Mitigation							Post-Mitigation							Confidence / Method
		Duration	Extent	Potential impact on irreplaceable resources	Severity	Consequence	Probability	Significance	Duration	Extent	Severity	Potential impact on irreplaceable resources	Consequence	Probability	Significance	
		and untreated wastewater must not be discharged to the catchment or surrounding areas, as saturated responsive soils (mostly associated with valley bottoms or water channels) have a high tendency to promote contaminant (i.e., bacteria and inorganic elements) migration towards water resources.														
Hydropedology	Potential reduction in subsurface lateral flow and return flow	3	3	1	-2	-14	2	-28	2	2	-1	1	-5	2	-10	High
	Recommended Mitigation Measures	• Minimise soil compaction and keep the soil covered with residue and vegetative cover; • Infiltration basins or trenches, where necessary, can minimise surface overflows or runoff and allow water that runs off from roofs to settle and re-infiltrate; • Establish vegetated buffer strips and grassed waterways around surface buildings and solar PV infrastructure to filter runoff and protect water bodies from contamination; • Prevent flood damage or concentration of runoff; • Preserve the natural and beneficial functions of the natural drainage system downstream; • Preserve and enhance stormwater quality; • Attenuate the difference between pre- and post-development flows; • Divert stormwater and surface runoff from buildings, roads, and parking areas via green engineering stormwater management dissipation infrastructure, wherever possible; • Prevent the disposal of wastewater into the catchment system or surrounding areas; and • Adhering to the recommended footprint buffers and wetland buffers proposed by the wetland specialist for the Project should reduce water losses from the catchment. Sanitation systems must not be located in responsive soils, and untreated wastewater must not be discharged to the catchment or surrounding areas, as saturated responsive soils (mostly associated with valley bottoms or water channels) have a high tendency to promote contaminant (i.e., bacteria and inorganic elements) migration towards water resources.														
Heritage / Palaeontology	Exposure/disturbance of unidentified subsurface heritage, burial or palaeontological resources	4	3	1	3	24	-2	-48	3	2	1	1	6	1	6	High
	Recommended Mitigation Measures	• Implement a Chance Find Procedure (CFP) and a Fossil Find Procedure (FFP).														
Wetlands / Aquatic Biodiversity	Sedimentation and turbidity from soil disturbance/runoff - Solar Facility														24 - Low	DWS RAM
	Recommended Mitigation Measures	• Adhere to the buffer areas (wetlands: 20 m; non-perennial drainage lines: 15 m). These must be visibly demarcated to avoid encroachment. • Clearly demarcate the construction footprint to avoid unnecessary disturbance and compaction outside the authorised area. Restrict vehicle and machinery movement to designated access routes and work areas and use existing routes before new roads are considered for construction. Stabilise exposed soils promptly using for example mulch, geotextiles, or temporary cover crops. Implement stormwater management measures across the site and along the margins of the roads (e.g., berms, silt fences, sediment traps) to control runoff and prevent erosion. • Address signs of erosion as they occur. • Till compacted soils to restore infiltration and prevent preferential flow paths. Rehabilitate and revegetate disturbed areas as soon as possible after construction activities are complete in each area. Schedule earthworks during dry periods where feasible to minimise erosion risk. • Locate stockpiles outside watercourses and buffer areas and ensure all stockpiles are located on flat terrain and protected from rain-wash. Bunding around stockpiles should be considered where excessive sediment runoff is observed.														
Wetlands / Aquatic Biodiversity	Vegetation loss/fragmentation and alien plant proliferation - Solar Facility														21.6 - Low	DWS RAM
	Recommended Mitigation Measures	• Minimise vegetation clearing and retain indigenous vegetation wherever possible. • Restrict the disturbance footprint to the authorised area only. • Promptly rehabilitate cleared areas with indigenous species. • Implement an Alien Invasive Plant Management Plan, including seasonal monitoring and removal of alien species. • Avoid the use of herbicides near the watercourses and their respective buffers; opt for mechanical removal of alien plants. • Conduct pre-construction walk-throughs to identify and relocate any fauna at risk.														
Wetlands / Aquatic Biodiversity	Water quality impairment from contaminated runoff, spills and ablutions - Solar Facility														10.8 - Low	DWS RAM
	Recommended Mitigation Measures	• Store fuels, oils, and chemicals in bunded areas away from sensitive environments. • Ensure spill kits are available on-site and staff are trained in spill response procedures. • Prohibit mixing of concrete and parking of machinery in or near wetlands and buffer areas. • Provide appropriate sanitation facilities for workers and service them regularly to prevent leaks. • Immediately treat or remove any contaminated soil for disposal at a licensed facility. • Regularly inspect and maintain machinery to prevent leaks.														

Specialist Discipline	Impact / Activity	Pre-Mitigation							Post-Mitigation							Confidence / Method
		Duration	Extent	Potential impact on irreplaceable resources	Severity	Consequence	Probability	Significance	Duration	Extent	Severity	Potential impact on irreplaceable resources	Consequence	Probability	Significance	
Wetlands / Aquatic Biodiversity	Erosion and sedimentation from compaction/vegetation clearance - Electrical Grid Connection														21.6 - Low	DWS RAM
	Recommended Mitigation Measures	• Adhere to and visibly demarcate the buffer areas (wetlands: 20 m; non-perennial drainage lines: 15 m) before works commence. Design culverts to maintain natural flow regimes and avoid altering drainage patterns. Culverts must span the watercourse. • Schedule works during dry periods to minimise hydrological disruption, where possible. • Use low ground-pressure machinery to reduce soil compaction, where possible. • Install erosion and sediment control measures (e.g., silt fences, sediment traps), where necessary and possible. • Stabilise exposed soils promptly with vegetation or geotextiles.														
Wetlands / Aquatic Biodiversity	Vegetation loss/fragmentation and alien plant proliferation - Electrical Grid Connection														21.6 - Low	DWS RAM
	Recommended Mitigation Measures	• Minimise vegetation clearance to the smallest area necessary. • Clearly demarcate work areas to avoid unnecessary disturbance. • Implement the Alien Invasive Plant Management Plan. • Restore cleared areas with indigenous vegetation post-construction.														
Wetlands / Aquatic Biodiversity	Water quality impairment from accidental spills - Electrical Grid Connection														16.2 - Low	DWS RAM
	Recommended Mitigation Measures	• Refuel and maintain machinery away from watercourses and wetlands. • Store chemicals and fuels in bunded, secure areas. • Train workers in spill prevention and response. • Keep spill kits on-site and respond immediately to any spills. • Regularly inspect and maintain machinery to prevent leaks.														
Visual	Effects on sense of place from construction vehicle movements	2	4	1	-2	-14	2	-28	2	4	-2	0	-12	2	-24	Moderate
	Recommended Mitigation Measures	• Construction vehicles must stay on designated routes and comply with the applicable site speed limits. • All drivers must be informed of the designated routes they may use during site induction.														
Visual	Effects on scenic resources and sense of place from dust generation	2	3	1	-2	-12	2	-24	2	3	-2	0	-10	2	-20	High
	Recommended Mitigation Measures	• Construction vehicles must stay on designated routes and comply with the applicable site speed limits. • Dust suppression should be implemented as and when necessary, particularly on unpaved access routes and exposed surfaces.														
Visual	Effects on scenic resources from litter and waste	2	3	0	-2	-10	2	-20	2	3	-1	0	-5	2	-10	High
	Recommended Mitigation Measures	• Waste management measures should be implemented, including toolbox talks, inductions, method statements, and the establishment of a designated waste management area. • All personnel should be responsible for picking up litter. • Waste should be separated into designated containers for general waste, hazardous waste and medical waste. • Hazardous and medical waste should be removed to designated, registered hazardous and medical waste facilities. • General waste should be removed to the nearest licensed waste facility. • Where feasible, broken PV panels should be collected for recycling. • A waste register with safe disposal manifests should be in place.														
Visual	Effects on sense of place from light pollution	2	3	1	-2	-12	2	-24	2	2	-1	0	-4	2	-8	High
	Recommended Mitigation Measures	• Construction lighting must be limited to that required for safety and security, and construction activities should be limited to daylight hours where feasible. • Lighting must be downward-facing, shielded, low intensity where possible, directed away from wetlands, natural areas and sensitive receptors, and motion-detection lighting should be used where feasible.														
Air Quality	Temporary dust and vehicle/equipment emissions associated with clearing, earthworks, exposed surfaces, unsealed roads and construction traffic	2	3	0	-1	-5	2	-10	2	2	-1	0	-4	1	-4	Medium
Noise	Temporary increase in noise from construction plant, vehicles, piling/foundation installation, earthworks and	2	3	0	-1	-5	2	-10	2	2	-1	0	-4	1	-4	Medium

Specialist Discipline	Impact / Activity	Pre-Mitigation							Post-Mitigation							Confidence / Method
		Duration	Extent	Potential impact on irreplaceable resources	Severity	Consequence	Probability	Significance	Duration	Extent	Severity	Potential impact on irreplaceable resources	Consequence	Probability	Significance	
	general site activity															
Traffic and Transportation	Temporary increase in construction traffic, deliveries and heavy vehicles, with potential interaction with mine traffic, other road users and pedestrians	2	3	0	-2	-10	2	-20	2	3	-1	0	-5	1	-5	Medium
Socio-Economic - Positive	Temporary employment, Contractor participation and local procurement opportunities during construction	2	3	0	2	10	2	20	2	3	2	0	10	2	20	Medium
Socio-Economic - Negative	Potential employment and procurement expectations, influx of job seekers, perceived inequity in access to opportunities and temporary community nuisance	2	3	0	-2	-10	2	-20	2	3	-1	0	-5	1	-5	Medium

12.7.2 Operational Phase

Table 12-8 presents the impacts expected during operation and maintenance of the solar facility and associated infrastructure, including the longer-term ecological, hydrological, visual and socio-economic effects.

Table 12-8: Operational Phase Impact Assessment Ratings

Specialist Discipline	Impact / Activity	Pre-Mitigation							Post-Mitigation							Confidence / Method
		Duration	Extent	Potential impact on irreplaceable resources	Severity	Consequence	Probability	Significance	Duration	Extent	Severity	Potential impact on irreplaceable resources	Consequence	Probability	Significance	
Soil and Agriculture	Compaction, soil erosion, spills and leaks affecting land capability and agricultural potential during operation	2	2	1	-2	-10	2	-20	1	2	-1	1	-4	1	-4	High
	Recommended Mitigation Measures	• Maintain all rehabilitated areas to ensure that disturbed soils remain stable and vegetated. • Maintain erosion and sediment control measures where exposed soils, concentrated runoff or erosion risk remains present. • Prevent new erosion channels, sediment loss or surface instability within the PV facility, access roads and servitude areas. • Limit vehicle movement to designated access roads and maintenance tracks to reduce soil compaction and vegetation disturbance. • Prevent chemical, fuel, oil or lubricant spills that may affect soil quality and agricultural potential. • Remediate any contaminated soil immediately following leaks, spills or maintenance incidents. • Continue implementing the Alien Invasive Plant Management Plan within disturbed, rehabilitated and operational areas. • Maintain vegetation cover in open areas to reduce erosion, dust generation and soil exposure. • Ensure operational waste is stored, handled and disposed of in a manner that prevents soil contamination. • Record and close out any soil-related non-compliances or corrective actions.														
Terrestrial Biodiversity	Continued fragmentation and degradation of functional habitats and ecosystems	4	2	1	-3	-21	2	-42	4	1	-1	1	-6	2	-12	High
	Recommended Mitigation Measures	• Restrict all activities to authorised footprint areas only. All vehicle and foot traffic must be restricted to existing roads only. No ingress into the natural environment (surrounding and within the Project Area of Influence (PAOI)) is allowed. Signs must be put up to enforce this. No stockpiles, laydowns or dumping of material is allowed. The footprint must be clearly demarcated, and signage must be put up to enforce adherence to the boundaries. • Implement the stormwater management plan, including all monitoring requirements, including after significant rainfall events, or flooding. • Address any observed erosion promptly using suitable erosion control and revegetation methods, as prescribed in the Erosion Management Plan. • Continue implementation of the rehabilitation plan. Conduct follow-up rehabilitation and revegetation of any bare areas with local indigenous grasses, shrubs, and trees.														
Terrestrial Biodiversity	Continued spread of alien invasive and weed species	4	3	1	-3	-24	2	-48	3	2	-1	1	-6	1	-6	High
	Recommended Mitigation Measures	• Continue implementing the Alien Invasive Plant Management Plan during the operational phase.														

Specialist Discipline	Impact / Activity	Pre-Mitigation							Post-Mitigation							Confidence / Method
		Duration	Extent	Potential impact on irreplaceable resources	Severity	Consequence	Probability	Significance	Duration	Extent	Severity	Potential impact on irreplaceable resources	Consequence	Probability	Significance	
		○ Conduct regular checks for alien invasive plant encroachment during the operational phase to prevent alien invasion following disturbance. Monitoring should occur twice a year for the first two years and annually thereafter for the duration of the Project. ○ Remove or control all alien invasive plant species using the appropriate methods outlined in the Alien Invasive Plant Management Plan. ○ The area of the PAOI bordering the intact grassland on the east should be prioritised for monitoring and control under the Alien Invasive Plant Management Plan. • Continue implementing the Waste Management Plan, ensuring all waste is collected, stored and disposed of properly. Waste should be removed from the site at least weekly. • Implement a pest control plan, ensuring that no poisons are used.														
Terrestrial Biodiversity	Ongoing displacement and direct mortalities of the faunal community due to continued disturbance (road collisions, noise, light, dust, vibration, poaching, etc.).	4	3	1	-2	-16	2	-32	3	2	-1	1	-6	2	-12	High
	Recommended Mitigation Measures	• Outdoor lighting must remain wildlife-sensitive and must: ○ Be directed downward and be low intensity where possible; ○ Be shielded with baffles, hoods or louvres; ○ Be directed away from wetlands and sensitive habitats; ○ Use motion-detection lighting where feasible; ○ Avoid fluorescent and mercury vapour lights where suitable; and ○ Avoid unnecessary illumination. • Limit, or prohibit if feasible, vehicle traffic and the use of vehicle lights at night. • Keep noise levels low from dusk to dawn to avoid disturbing amphibians and nocturnal animals. • Safely relocate any wildlife threatened by maintenance and operational activities with the help of a qualified individual. • All operational and maintenance vehicles must adhere to a maximum speed limit of 40 km/h to avoid collisions. Appropriate speed control measures and signs must be maintained.														
Avifauna	Collisions with infrastructure associated with the PV facility	4	2	2	-3	-24	2	-48	3	1	-2	1	-15	1	-15	High
	Recommended Mitigation Measures	• Avifauna mortalities, injuries or collision incidents must be recorded in an incident register and reported to the ECO. • If repeated bird collisions or mortalities are recorded, the avifauna specialist must be consulted, and additional mitigation must be implemented where required. • Conduct fatality monitoring quarterly during the first 3 years of operation and develop a database that will be shared with BirdLife Africa. • Install diverters along the entire power line route. • Operational lighting must be kept to the minimum required for safety and security and must be directed away from natural areas and watercourses.														
Avifauna	Electrocution due to infrastructure associated with the facility	4	2	1	-3	-21	2	-42	3	1	-2	1	-15	1	-15	High
	Recommended Mitigation Measures	• Electrical infrastructure must be inspected and maintained to ensure that insulation, bird-safe designs and bird diverters remain effective. • Damaged insulation, exposed live components or damaged bird diverters must be repaired or replaced as soon as reasonably practicable. • Conduct fatality monitoring quarterly during the first 3 years of operation and develop a database that will be shared with BirdLife Africa. • Operational lighting must be kept to the minimum required for safety and security and must be directed away from natural areas and watercourses.														
Avifauna	Direct mortality from vehicle collisions, persecution or poaching of avifauna species and collection of eggs	4	2	1	-2	-14	2	-28	3	1	-1	1	-5	1	-5	High
	Recommended Mitigation Measures	• Vehicle movement must be restricted to designated internal roads and maintenance tracks, and the 40 km/h speed limit must remain in place. • Implement regular road maintenance to prevent dust clouds that obscure visibility. • Conduct fatality monitoring during the first 3 years of operation and develop a database that will be shared with BirdLife Africa. • Maintain a database of collisions to identify hotspots requiring additional mitigation and maintain access controls and environmental awareness measures prohibiting hunting, trapping, collection of eggs and harm to wildlife.														
Avifauna	Direct mortality and restriction of movement from fencing infrastructure	4	2	1	-2	-14	2	-28	3	1	-1	1	-5	2	-10	High
	Recommended Mitigation Measures	• Use ClearVu or similar type fencing with markers placed on the fence to enhance visibility. • Ensure fencing is clearly visible to birds to prevent collisions. • Conduct fatality monitoring during the first 3 years of operation and develop a database that will be shared with BirdLife Africa. • Review collision records regularly to identify hotspots requiring additional mitigation. • Maintain a database of collisions to support hotspot identification and adaptive mitigation.														

Specialist Discipline	Impact / Activity	Pre-Mitigation							Post-Mitigation							Confidence / Method
		Duration	Extent	Potential impact on irreplaceable resources	Severity	Consequence	Probability	Significance	Duration	Extent	Severity	Potential impact on irreplaceable resources	Consequence	Probability	Significance	
Avifauna	Pollution of water sources and surrounding habitat due to cleaning products of the PV panels.	4	2	1	-2	-14	2	-28	3	2	-1	1	-6	1	-6	High
	Recommended Mitigation Measures	• The Project's spill prevention and response procedures must be implemented for all hydrocarbon and chemical incidents. • Panel cleaning runoff must not be discharged to watercourses, wetlands or their buffers. • Only environmentally friendly or biodegradable cleaning products may be used for panel cleaning. Harsh chemicals, detergents or substances that may contaminate soil or water resources must be avoided.														
Avifauna	Heat radiation from the PV panels	4	2	1	-2	-14	2	-28	3	1	0	1	0	1	0	High
	Recommended Mitigation Measures	• Maintain indigenous vegetation under and around panels • Ensure adequate moisture retention in soil through indigenous vegetation cover • Monitor indigenous vegetation cover and adjust management practices accordingly														
Hydropedology	Erosion associated with increased overland flow	2	2	1	-2	-10	2	-20	1	2	-1	1	-4	2	-8	High
	Recommended Mitigation Measures	• Minimise soil compaction and keep the soil covered with residue and vegetative cover; • Infiltration basins or trenches, where necessary, can minimise surface overflows or runoff and allow water that runs off from roofs to settle and re-infiltrate; • Establish vegetated buffer strips and grassed waterways around surface buildings and solar PV infrastructure to filter runoff and protect water bodies from contamination; • Prevent flood damage or concentration of runoff; • Preserve the natural and beneficial functions of the natural drainage system downstream; • Preserve and enhance stormwater quality; • Attenuate the difference between pre- and post-development flows; • Divert stormwater and surface runoff from buildings, roads, and parking areas via green engineering stormwater management dissipation infrastructure, wherever possible; • Prevent the disposal of wastewater into the catchment system or surrounding areas; and • Adhering to the recommended footprint buffers and wetland buffers proposed by the wetland specialist for the Project should reduce water losses from the catchment. Sanitation systems must not be located in responsive soils, and untreated wastewater must not be discharged to the catchment or surrounding areas, as saturated responsive soils (mostly associated with valley bottoms or water channels) have a high tendency to promote contaminant (i.e., bacteria and inorganic elements) migration towards water resources.														
Hydropedology	Potential reduction in subsurface lateral flow and return flow	4	3	1	-2	-16	2	-32	1	3	-1	1	-5	2	-10	High
	Recommended Mitigation Measures	• Minimise soil compaction and keep the soil covered with residue and vegetative cover; • Infiltration basins or trenches, where necessary, can minimise surface overflows or runoff and allow water that runs off from roofs to settle and re-infiltrate; • Establish vegetated buffer strips and grassed waterways around surface buildings and solar PV infrastructure to filter runoff and protect water bodies from contamination; • Prevent flood damage or concentration of runoff; • Preserve the natural and beneficial functions of the natural drainage system downstream; • Preserve and enhance stormwater quality; • Attenuate the difference between pre- and post-development flows; • Divert stormwater and surface runoff from buildings, roads, and parking areas via green engineering stormwater management dissipation infrastructure, wherever possible; • Prevent the disposal of wastewater into the catchment system or surrounding areas; and • Adhering to the recommended footprint buffers and wetland buffers proposed by the wetland specialist for the Project should reduce water losses from the catchment. Sanitation systems must not be located in responsive soils, and untreated wastewater must not be discharged to the catchment or surrounding areas, as saturated responsive soils (mostly associated with valley bottoms or water channels) have a high tendency to promote contaminant (i.e., bacteria and inorganic elements) migration towards water resources.														
Heritage / Palaeontology	Exposure of unidentified subsurface heritage resources during maintenance-related excavation	4	3	1	3	24	-2	-48	3	2	1	1	6	1	6	High
	Recommended Mitigation Measures	• Implement the Chance Find Procedure (CFP) and Fossil Find Procedure (FFP).														
Wetlands / Aquatic Biodiversity	Water quality impairment from cleaning chemicals/contaminated runoff - Solar Facility														21.6 - Low	DWS RAM
	Recommended Mitigation Measures	• Refuel and maintain machinery away from watercourses and wetlands. • Store chemicals and fuels in bunded, secure areas. • Train workers in spill prevention and response. • Keep spill kits on-site and respond immediately to any spills.														

Specialist Discipline	Impact / Activity	Pre-Mitigation							Post-Mitigation							Confidence / Method
		Duration	Extent	Potential impact on irreplaceable resources	Severity	Consequence	Probability	Significance	Duration	Extent	Severity	Potential impact on irreplaceable resources	Consequence	Probability	Significance	
		• Regularly inspect and maintain machinery to prevent leaks. Only environmentally friendly or biodegradable cleaning products may be used for panel cleaning, and panel cleaning runoff must not be discharged to watercourses, wetlands or their buffers.														
Wetlands / Aquatic Biodiversity	Continued establishment and spread of alien invasive vegetation - Solar Facility														10.8 - Low	DWS RAM
	Recommended Mitigation Measures	• Conduct regular monitoring for alien and invasive plant species and remove them promptly using mechanical methods in watercourse and buffer areas. • Maintain indigenous vegetation cover to outcompete potential invaders by relandscaping and revegetating any residual disturbed areas.														
Wetlands / Aquatic Biodiversity	Altered overland flow, erosion and sedimentation - Solar Facility														21.6 - Low	DWS RAM
	Recommended Mitigation Measures	• Design and implement effective stormwater management systems to control runoff from roads and hardened surfaces. • Maintain stormwater infrastructure regularly to ensure functionality. • Use permeable materials for roads and surfaces where possible to reduce runoff. • Promote infiltration under panels using grass cover or gravel instead of paving. • Monitor for signs of erosion and sedimentation and implement corrective actions as needed. • Maintain vegetative buffers around the facility to slow and filter runoff.														
Wetlands / Aquatic Biodiversity	Altered overland flow, erosion and sedimentation - Electrical Grid Connection														21.6 - Low	DWS RAM
	Recommended Mitigation Measures	• Design and implement effective stormwater management systems to control runoff from roads and hardened surfaces. • Maintain stormwater infrastructure regularly to ensure functionality. • Use permeable materials for roads and surfaces where possible to reduce runoff. • Promote infiltration within disturbed grid-servitude areas using grass cover or other permeable surfaces instead of paving. • Monitor for signs of erosion and sedimentation and implement corrective actions as needed. • Maintain vegetative buffers along the electrical grid connection to slow and filter runoff.														
Wetlands / Aquatic Biodiversity	Continued establishment and spread of alien invasive vegetation - Electrical Grid Connection														19.8 - Low	DWS RAM
	Recommended Mitigation Measures	• Conduct regular monitoring for alien and invasive plant species and remove them promptly using mechanical methods in watercourse and buffer areas. • Maintain indigenous vegetation cover to outcompete potential invaders by relandscaping and revegetating any residual disturbed areas.														
Visual	Effects on sense of place from infrastructure visibility	4	3	1	-2	-16	2	-32	4	3	-2	1	-16	2	-32	High
	Recommended Mitigation Measures	• Retain/re-establish and maintain natural vegetation, where possible. • Maintain general appearance of the development.														
Visual	Effects on scenic resources from visual exposure	4	3	1	-2	-16	1	-16	4	3	-1	1	-8	2	-16	Moderate
	Recommended Mitigation Measures	• Retain/re-establish and maintain natural vegetation, where possible. • Maintain general appearance of the development.														
Visual	Visual exposure of sensitive receptors	4	2	1	-1	-7	1	-7	4	2	-1	1	-7	1	-7	Moderate
	Recommended Mitigation Measures	• Retain/re-establish and maintain natural vegetation, where possible. • Maintain general appearance of the development.														
Visual	Effects on sense of place from lighting and sky glow	4	3	1	-1	-8	2	-16	4	3	-1	1	-8	1	-8	High
	Recommended Mitigation Measures	Operational lighting must be kept to the minimum required for safety and security and, as far as practicable: • Shield light sources and direct lighting downward and away from wetlands, natural areas and sensitive receptors, using baffles, hoods, louvres or physical barriers (walls, vegetation, etc.). • Limit mounting heights of lighting fixtures, or alternatively use footlights or bollard level lights. • Use the minimum lumen output or wattage required in lighting fixtures. • Use down-lighters or other fully shielded fixtures, and use motion-detection lighting where feasible.														
Air Quality	Minor localised dust and vehicle emissions associated with maintenance traffic, access roads and occasional maintenance activities	4	2	0	-1	-6	1	-6	4	1	-1	0	-5	1	-5	Medium
Noise	Operational noise from inverters, transformers, electrical equipment and intermittent maintenance vehicles	4	2	0	-1	-6	1	-6	4	1	-1	0	-5	1	-5	Medium
Traffic and Transportation	Intermittent operational and maintenance vehicle movements on the existing mine access and internal road network	4	3	0	-1	-7	1	-7	4	2	-1	0	-6	1	-6	Medium

Specialist Discipline	Impact / Activity	Pre-Mitigation							Post-Mitigation							Confidence / Method
		Duration	Extent	Potential impact on irreplaceable resources	Severity	Consequence	Probability	Significance	Duration	Extent	Severity	Potential impact on irreplaceable resources	Consequence	Probability	Significance	
Socio-Economic - Positive	Renewable electricity generation supporting mine energy resilience, together with limited long-term operations, maintenance and procurement opportunities	4	3	0	1	7	2	14	4	3	1	0	7	2	14	Medium
Socio-Economic - Negative	Operational employment opportunities are substantially fewer than during construction, which may result in unmet local employment expectations	4	3	0	-1	-7	1	-7	4	2	-1	0	-6	1	-6	Medium

12.7.3 Decommissioning Phase

Table 12-9summarises the impacts associated with dismantling, material removal and rehabilitation should the facility be decommissioned at the end of its operational life.

Table 12-9: Decommissioning Phase Impact Assessment Ratings

Specialist Discipline	Impact / Activity	Pre-Mitigation							Post-Mitigation							Confidence / Method
		Duration	Extent	Potential impact irreplaceable resources	Severity	Consequence	Probability	Significance	Duration	Extent	Severity	Potential impact irreplaceable resources	Consequence	Probability	Significance	
Soil and Agriculture	Soil disturbance, compaction, erosion and contamination during infrastructure removal and rehabilitation	3	2	1	-2	-12	2	-24	2	2	-1	1	-5	2	-12	High
	Recommended Mitigation Measures	• Evaluate whether the Project infrastructure can be repowered, reused or transferred to an alternative beneficial use before full decommissioning is undertaken. • Prepare a decommissioning and rehabilitation method statement before removal activities commence. • Demarcate decommissioning work areas, access routes, laydown areas, stockpile areas and no-go areas. • Remove infrastructure in a manner that minimises soil disturbance and avoids unnecessary vegetation clearing. • Remove all waste, redundant materials, concrete, cabling, panels and associated infrastructure from site unless retained for an approved alternative use. • Identify, contain and remediate any contaminated soil associated with decommissioning activities. • Rip or loosen compacted soils in areas affected by access roads, laydown areas, panel infrastructure and decommissioning activities. • Replace and spread available topsoil over rehabilitated areas where soil stripping or disturbance has occurred. • Stabilise exposed soils and erosion-prone areas immediately following infrastructure removal and soil preparation. • Re-establish vegetation cover on disturbed areas using appropriate indigenous species or approved seed mixes. • Control alien and invasive plant species during decommissioning and post-closure rehabilitation. • Monitor rehabilitated areas for erosion, compaction, vegetation establishment, alien plant growth and residual contamination. • Confirm that rehabilitation objectives have been achieved before final closure sign-off.														
Terrestrial Biodiversity	Temporary habitat and fauna disturbance during infrastructure removal and rehabilitation	4	3	1	-1	-8	2	-16	3	2	-1	1	-6	1	-6	High
Avifauna	Decommissioning-related avifaunal disturbance	4	2	2	-3	-24	2	-48	2	0	-1	1	-5	0	0	High
	Recommended Mitigation Measures	• A pre-decommissioning avifauna inspection must be undertaken before vegetation clearance or infrastructure removal. • If active nests or breeding activity are identified, the area must be temporarily avoided until the ECO or avifauna specialist confirms the appropriate management response. • Decommissioning activities must be restricted to the approved footprint and existing access routes as far as reasonably practicable. • Redundant infrastructure, waste, cabling, panels and hazardous materials must be removed from site and reused, recycled or disposed of at appropriately licensed facilities. Disturbed and compacted areas must be ripped, stabilised and rehabilitated where required. • Rehabilitated areas must be revegetated with indigenous species or an approved seed mix suitable for the local vegetation type. • Alien and invasive plant species must be controlled during rehabilitation and post-closure monitoring.														

		• Rehabilitated areas must be monitored for vegetation establishment, erosion, alien invasive plants and any avifauna-related incidents.															
Hydropedology	Erosion associated with increased overland flow	2	2	1	-2	-10	2	-20	1	2	-1	1	-4	1	-4	High	
	Recommended Mitigation Measures	• Minimise soil compaction and keep the soil covered with residue and vegetative cover; • Infiltration basins or trenches, where necessary, can minimise surface overflows or runoff and allow water that runs off from roofs to settle and re-infiltrate; • Establish vegetated buffer strips and grassed waterways around surface buildings and solar PV infrastructure to filter runoff and protect water bodies from contamination; • Prevent flood damage or concentration of runoff; • Preserve the natural and beneficial functions of the natural drainage system downstream; • Preserve and enhance stormwater quality; • Attenuate the difference between pre- and post-development flows; • Divert stormwater and surface runoff from buildings, roads, and parking areas via green engineering stormwater management dissipation infrastructure, wherever possible; • Prevent the disposal of wastewater into the catchment system or surrounding areas; and • Adhering to the recommended footprint buffers and wetland buffers proposed by the wetland specialist for the Project should reduce water losses from the catchment. Sanitation systems must not be located in responsive soils, and untreated wastewater must not be discharged to the catchment or surrounding areas, as saturated responsive soils (mostly associated with valley bottoms or water channels) have a high tendency to promote contaminant (i.e., bacteria and inorganic elements) migration towards water resources.														
Hydropedology	Potential reduction in subsurface lateral flow and return flow	2	3	1	-2	-12	2	-24	1	2	-1	1	-4	2	-8	High	
	Recommended Mitigation Measures	• Minimise soil compaction and keep the soil covered with residue and vegetative cover; • Infiltration basins or trenches, where necessary, can minimise surface overflows or runoff and allow water that runs off from roofs to settle and re-infiltrate; • Establish vegetated buffer strips and grassed waterways around surface buildings and solar PV infrastructure to filter runoff and protect water bodies from contamination; • Prevent flood damage or concentration of runoff; • Preserve the natural and beneficial functions of the natural drainage system downstream; • Preserve and enhance stormwater quality; • Attenuate the difference between pre- and post-development flows; • Divert stormwater and surface runoff from buildings, roads, and parking areas via green engineering stormwater management dissipation infrastructure, wherever possible; • Prevent the disposal of wastewater into the catchment system or surrounding areas; and • Adhering to the recommended footprint buffers and wetland buffers proposed by the wetland specialist for the Project should reduce water losses from the catchment. Sanitation systems must not be located in responsive soils, and untreated wastewater must not be discharged to the catchment or surrounding areas, as saturated responsive soils (mostly associated with valley bottoms or water channels) have a high tendency to promote contaminant (i.e., bacteria and inorganic elements) migration towards water resources.														
Heritage / Palaeontology	Exposure of unidentified subsurface heritage, archaeological, burial or palaeontological resources during decommissioning	4	3	1	3	24	-2	-48	3	2	1	1	6	1	6	High	
	Recommended Mitigation Measures	• Implement a Chance Find Procedure (CFP) and a Fossil Find Procedure (FFP).															
Wetlands / Aquatic Biodiversity	Altered hydrology, erosion and sedimentation														18 - Low	DWS RAM	
	Recommended Mitigation Measures	• Adhere to the buffer areas (wetlands: 20 m; non-perennial drainage lines: 15 m). These must be visibly demarcated to avoid encroachment. • Clearly demarcate the decommissioning work areas, access routes and no-go areas to avoid unnecessary disturbance and compaction outside the authorised area. • Restrict vehicle and machinery movement to designated access routes and work areas and use existing routes before any new routes are considered for decommissioning. • Stabilise exposed soils promptly using for example mulch, geotextiles, or temporary cover crops. • Implement stormwater management measures across the site and along the margins of the roads (e.g., berms, silt fences, sediment traps) to control runoff and prevent erosion. • Address signs of erosion as they occur. • Till compacted soils to restore infiltration and prevent preferential flow paths. • Rehabilitate and revegetate disturbed areas as soon as possible after decommissioning activities are complete in each area. • Schedule earthworks during dry periods where feasible to minimise erosion risk. • Locate stockpiles outside watercourses and buffer areas and ensure all stockpiles are located on flat terrain and protected from rain-wash. Bunding around stockpiles should be considered where excessive sediment runoff is observed.														
Wetlands / Aquatic Biodiversity	Vegetation disturbance and alien invasive vegetation														16.2 - Low	DWS RAM	
	Recommended Mitigation Measures	• Minimise vegetation clearing and retain indigenous vegetation wherever possible. • Restrict the disturbance footprint to the authorised area only. • Promptly rehabilitate cleared areas with indigenous species. • Implement the Alien Invasive Plant Management Plan, including seasonal monitoring and removal of alien species. • Avoid the use of herbicides near the watercourses and their respective buffers; opt for mechanical removal of alien plants. • Conduct pre-decommissioning walk-throughs to identify and safely relocate any fauna at risk.														

Wetlands / Aquatic Biodiversity	Water quality impairment from contaminated runoff/material removal														9.6 - Low	DWS RAM
	Recommended Mitigation Measures	• Store fuels, oils, and chemicals in bunded areas away from sensitive environments. • Ensure spill kits are available on-site and staff are trained in spill response procedures. • Prohibit mixing of concrete and parking of machinery in or near wetlands and buffer areas. • Provide appropriate sanitation facilities for workers and service them regularly to prevent leaks. • Immediately treat or remove any contaminated soil for disposal at a licensed facility. • Regularly inspect and maintain machinery to prevent leaks.														
Visual	Effects on sense of place from construction vehicle movements	2	4	1	-2	-14	2	-28	2	4	-1	1	-7	2	-14	Moderate
	Recommended Mitigation Measures	• Decommissioning vehicles must stay on designated access routes and work areas. • All drivers must be informed of the designated routes they may use during site induction.														
Visual	Effects on scenic resources and sense of place from dust generation	2	3	0	-2	-10	2	-20	2	2	-1	0	-4	2	-8	High
	Recommended Mitigation Measures	• Dust suppression should be implemented as and when necessary.														
Visual	Effects on scenic resources from litter and waste	2	3	0	-3	-15	2	-30	2	2	-1	0	-4	2	-8	High
	Recommended Mitigation Measures	• Waste management measures should be implemented, including toolbox talks, inductions, method statements, and the establishment of a designated waste management area. • All personnel should be responsible for picking up litter. • Waste should be separated into designated containers for general waste, hazardous waste and medical waste. • Hazardous and medical waste should be removed to designated, registered hazardous and medical waste facilities. • General waste should be removed to the nearest licensed waste facility. • Where feasible, broken PV panels should be collected for recycling. • A waste register with safe disposal manifests should be in place.														
Visual	Effects on scenic resources from vegetation clearance	2	2	0	-3	-12	2	-24	2	2	-1	0	-4	2	-8	High
	Recommended Mitigation Measures	• Retain and maintain natural vegetation, where possible. • Ensure that vegetation is not unnecessarily removed during the decommissioning phase. • Rehabilitate all disturbed areas immediately after the completion of decommissioning work.														
Visual	Effects on sense of place from light pollution	2	3	1	-2	-12	2	-24	2	2	-1	0	-4	2	-8	High
	Recommended Mitigation Measures	• Limit decommissioning activities to daylight hours if feasible.														
Air Quality	Temporary dust and vehicle/equipment emissions during dismantling, material handling, earthworks and rehabilitation	2	3	0	-1	-5	2	-10	2	2	-1	0	-4	1	-4	Medium
Noise	Temporary noise from dismantling equipment, machinery, vehicles and rehabilitation activities	2	3	0	-1	-5	2	-10	2	2	-1	0	-4	1	-4	Medium
Traffic and Transportation	Temporary increase in heavy vehicles transporting dismantled equipment, recyclable materials and waste from site	2	3	0	-2	-10	2	-20	2	3	-1	0	-5	1	-5	Medium
Socio-Economic - Positive	Temporary employment and contracting opportunities associated with dismantling, rehabilitation, reuse and recycling activities	2	3	0	2	10	2	20	2	3	2	0	10	2	20	Medium
Socio-Economic - Negative	Loss of remaining operational employment opportunities and temporary nuisance associated with dismantling and heavy-vehicle activity	4	3	0	-2	-14	2	-28	4	3	-1	0	-7	2	-14	Medium

12.7.4 Cumulative Impacts

Table 12-10 summarises the cumulative effects of the Project when considered together with existing mining and infrastructure development, as well as other reasonably foreseeable development in the wider landscape.

Table 12-10: Cumulative Impact Assessment Ratings

Specialist Discipline	Impact / Activity	Pre-Mitigation							Post-Mitigation						
		Duration	Extent	Severity	Potential impact on irreplaceable resources	Consequence	Probability	Significance	Duration	Extent	Severity	Potential impact on irreplaceable resources	Consequence	Probability	Significance
Soil and Agriculture	Cumulative loss/disturbance of land capability and agricultural potential														
	Impact in Isolation	3	2	1	-2	-12	2	-24	2	2	-1	1	-5	2	-10
	Cumulative impact	3	3	-2	1	-16	2	-32	2	3	-1	1	-6	2	-12
Terrestrial Biodiversity	Cumulative biodiversity impact associated with habitat transformation														
	Impact in isolation	4	3	1	-3	-24	1	-24	4	2	-2	1	-14	1	-14
	Cumulative impact	4	3	1	-3	-24	2	-48	4	3	-2	1	-16	2	-32
Avifauna	Cumulative avifaunal impacts from construction and operation of the proposed Project														
	Impact in isolation	4	3	-3	0	-21	1	-21	4	2	-3	0	-18	1	-18
	Cumulative impact	4	3	-3	1	-24	2	-48	4	3	-2	1	-16	2	-32
Heritage / Palaeontology	Cumulative effect on cultural landscape and unknown heritage resources	1	1	2	1	6	-1	-6	3	1	0	1	0	0	0
Visual	Combined visual influence of other renewable energy development within the wider landscape	4	3	0	-1	-7	0	0	4	3	0	0	0	1	0
Air Quality	Combined dust and vehicle emissions from Project activities, existing mining operations and road traffic	4	3	-1	0	-7	1	-7	4	2	-1	0	-6	1	-6
Noise	Combined noise from Project activities, mining operations, electrical infrastructure and road traffic	4	3	-1	0	-7	1	-7	4	2	-1	0	-6	1	-6
Traffic and Transportation	Combined Project deliveries and vehicle movements with existing mine-related and regional road traffic	2	3	-2	0	-10	1	-10	2	3	-1	0	-5	1	-5
Socio-Economic - Positive	Incremental contribution to local procurement, renewable energy investment and diversification of the mine's electricity supply	4	4	1	0	8	2	16	4	4	1	0	8	2	16
Socio-Economic - Negative	Cumulative employment expectations, competition for opportunities and temporary construction-related pressure where Project schedules overlap	3	3	-1	0	-6	1	-6	2	3	-1	0	-5	1	-5

13 SUMMARY OF SPECIALIST REPORTS

Eight specialist reports were prepared to inform the environmental impact assessment, identification of environmental sensitivities, selection and refinement of the preferred development layout, and preparation of the EMPr for the proposed Project.

The findings and recommendations of the specialist investigations have been incorporated into the BAR, including the identification of sensitive environmental features, avoidance requirements, mitigation measures, rehabilitation provisions and monitoring commitments. The specialist recommendations are summarised in **Table 13-1**, with reference to the relevant sections of the BAR and EMPr.

Table 13-1: Summary of Specialist Reports and Incorporation of Recommendations into this Report

List of Studies Undertaken	Recommendations of Specialist Reports	Specialist Recommend-ations Included in BAR (X)	Reference to Applicable Section of Report
Soil and Agricultural Compliance Statement (The Biodiversity Company, 2026a)	Minimise the development footprint and unnecessary disturbance of natural soils. Restrict construction activities and vehicle movements to designated areas. Implement appropriate topsoil stripping, stockpiling and reinstatement procedures, prevent soil compaction and erosion, and rehabilitate temporarily disturbed areas.	X	Section 11.4 Section 12.2.1 Section 12.3.1 Section 12.7 Section 24 Appendix C
Terrestrial Biodiversity Assessment (The Biodiversity Company, 2026b)	Prioritise development within lower-sensitivity Modified habitat and Alien Stands. Avoid or minimise disturbance to remaining grassland and High Site Ecological Importance (SEI) Water Resources habitat. Undertake a pre-construction ecological walkdown, identify and protect species of conservation concern (SCC), demarcate no-go areas, implement fauna protection measures and an Alien and Invasive Plant Management Plan, and rehabilitate disturbed areas using suitable indigenous vegetation.	X	Section 11.5 Section 12.2.2 Section 12.3.2 Section 12.7 Section 24 Appendix D
Avifaunal Assessment (The Biodiversity Company, 2026c)	Avoid High SEI Water Resources habitat, including the identified overlap associated with the preliminary access road and overhead power line corridor. Undertake pre-construction avifaunal walkdowns, protect active nests and sensitive habitats, incorporate bird-sensitive electrical infrastructure design, implement collision and electrocution prevention measures, and undertake avifaunal monitoring	X	Section 11.6 Section 12.2.3 Section 12.3.3 Section 12.7 Section 24 Appendix E

List of Studies Undertaken	Recommendations of Specialist Reports	Specialist Recommend-ations Included in BAR (X)	Reference to Applicable Section of Report
	during construction and operation.		
Wetland Functional and Impact Assessment (The Biodiversity Company, 2026d)	Avoid delineated wetlands, non-perennial drainage features and their prescribed scientific buffers. Maintain natural drainage connectivity and implement appropriate stormwater, erosion, sediment and pollution controls. Locate temporary construction facilities and potentially polluting activities outside sensitive aquatic areas. Implement rehabilitation and monitoring measures. Apply the recommended 20 m wetland and 15 m drainage feature scientific buffers, subject to the final specialist recommendations and applicable authorisation requirements.	X	Section 11.7 Section 12.2.4 Section 12.3.4 Section 12.7 Section 24 Appendix F
Hydropedological Assessment (The Biodiversity Company, 2026e)	Maintain natural surface and subsurface flow pathways and hydrological connectivity. Minimise soil compaction and surface sealing, preserve infiltration and recharge processes, avoid sensitive responsive-wet soils, and implement vegetated stormwater controls to prevent concentrated runoff and erosion. Rehabilitate compacted or disturbed soils and prevent wastewater contamination.	X	Section 11.8 Section 12.2.5 Section 12.3.5 Section 12.7 Section 24 Appendix G
Heritage Impact Assessment, including Palaeontological Considerations (Digby Wells Environmental, 2026)	Restrict ground disturbance to the assessed development footprint. Implement the recommended Chance Find and Fossil Find Procedures. Provide appropriate heritage awareness training and ensure that work ceases in the immediate vicinity of any previously unidentified archaeological, historical, burial or palaeontological resources pending assessment and direction from the relevant specialist or heritage authority.	X	Section 11.9 Section 11.10 Section 12.2.6 Section 12.3.6 Section 12.7 Section 24 Appendix H
Visual Impact Assessment	Minimise unnecessary vegetation clearing and visual disturbance.	X	Section 11.15 Section 12.2.7

List of Studies Undertaken	Recommendations of Specialist Reports	Specialist Recommend-ations Included in BAR (X)	Reference to Applicable Section of Report
(Donaway Environmental, 2026)	Locate temporary infrastructure within previously disturbed areas where practicable, control construction dust and lighting, limit operational lighting to essential safety and security requirements, maintain the appearance of infrastructure and rehabilitate temporary construction areas.		Section 12.3.7 Section 12.7 Section 24 Appendix I
Final Rehabilitation, Decommissioning and Mine Closure Plan (NEG, 2026)	Implement a structured decommissioning and rehabilitation programme to achieve a stable, sustainable post-closure land use consistent with the surrounding indigenous grassland environment. Remove redundant solar photovoltaic panels, mounting structures, electrical equipment and associated infrastructure, prioritising reuse and recycling and ensuring appropriate management of hazardous and non-hazardous waste. Decompact disturbed soils, reinstate topsoil, implement erosion control and revegetate disturbed areas using suitable indigenous species. Implement alien invasive plant management, with particular attention to the initial rehabilitation period, and monitor rehabilitation success for at least five years. Maintain and periodically review adequate financial provision for rehabilitation and closure. The estimated closure liability is R6,474,968 (including VAT), subject to periodic review and adjustment.	X	Section 21 Section 24 Section 26 Section 27 Appendix J

The specialist reports are included as appendices to this Report and must be read together with the consolidated impact assessment, preferred development layout and EMPr. The recommendations identified above have been incorporated into the assessment and proposed environmental management requirements. Their implementation will be subject to the conditions of the EA and any other applicable statutory approvals.

14 ENVIRONMENTAL IMPACT STATEMENT

The proposed Project entails the development of a solar PV facility with a generation capacity of up to 20 MWac, together with associated electrical infrastructure, access roads and supporting facilities at BS Mine. The proposed Project is intended primarily to supplement the electricity requirements of the existing mining operations through renewable electricity generation.

The environmental impact assessment considered the receiving environment, findings of the specialist investigations, reasonable and feasible alternatives, and potential impacts associated with the construction, operation and decommissioning of the proposed Project. The assessment identified environmental sensitivities requiring protection, particularly terrestrial and avifaunal habitats, wetlands and drainage features, hydropedologically sensitive soils and natural drainage pathways.

The environmental concerns relate to the disturbance and fragmentation of natural habitats, potential impacts on avifauna associated with electrical infrastructure, alteration of surface and subsurface water movement, soil disturbance and erosion, and potential pollution of water resources. Construction activities may also result in temporary dust, noise, traffic and visual disturbance. These matters have been assessed through the relevant specialist investigations and environmental impact assessment, with appropriate avoidance, mitigation, rehabilitation and monitoring measures incorporated into the proposed EMPr.

The specialist assessments indicate that the majority of identified environmental impacts can be reduced to acceptable residual significance through appropriate infrastructure placement, avoidance of sensitive environmental features, implementation of the prescribed mitigation measures and effective environmental management. However, cumulative terrestrial biodiversity and avifaunal impacts remain relevant considerations within the broader landscape and require continued attention to habitat protection and ecological connectivity.

The avifaunal assessment identified an approximately 0.29-ha overlap between preliminary infrastructure and habitat classified as having High SEI. The final development layout must therefore be verified against the specialist sensitivity mapping, and the identified overlap must be appropriately resolved before the affected infrastructure is implemented. Any resulting changes must remain consistent with the specialist assessments and applicable authorisation requirements (The Biodiversity Company, 2026c).

The proposed Project is also expected to provide positive benefits through renewable electricity generation, diversification of the Mine's electricity supply, and temporary employment and procurement opportunities during construction. These benefits must be considered alongside the environmental constraints and residual impacts identified through the assessment.

Overall, the environmental assessment supports the proposed Project from an environmental perspective, subject to confirmation of the final development layout, implementation of the specialist recommendations and EMPr, and compliance with the conditions imposed by the competent authority.

14.1 Final Site Map

The proposed final development layout, indicating the solar PV facility and associated

infrastructure, is presented in **Figure 3-4**. The layout must be read together with the specialist sensitivity maps, identified avoidance areas and applicable environmental management requirements. The final layout remains subject to verification of the identified avifaunal habitat overlap before construction.

14.2 Summary of the Positive and Negative Impacts and Risks of the Proposed Activity for the Alternatives

Four potential development sites were considered during the initial site selection process. Site 4 was identified as the preferred alternative based on its overall suitability for the proposed development, taking into consideration available land, topographical conditions, proximity to the intended electricity connection point, existing infrastructure and environmental constraints.

The preferred alternative provides an opportunity to develop renewable electricity generation capacity within an existing mining environment, thereby supporting the diversification of electricity supply and reducing reliance on grid-supplied electricity during periods of solar generation. The proposed Project is also expected to provide temporary employment and procurement opportunities during construction.

The potential adverse impacts associated with the preferred alternative include disturbance of natural vegetation and habitats, potential effects on avifauna, wetlands and drainage features, changes to hydropedological functioning, soil disturbance and erosion, and temporary construction-related nuisance. These impacts have been evaluated through the environmental impact assessment and relevant specialist investigations.

The No-Go Alternative would avoid the direct environmental disturbance associated with construction and operation of the proposed infrastructure. However, it would not provide the proposed renewable electricity generation capacity or associated socio-economic benefits.

Although four potential sites were considered during initial screening, the detailed specialist assessments primarily addressed the preferred development area. Accordingly, the comparative assessment of the alternative sites is based on the information available during the site selection process and should not be interpreted as an equivalent detailed specialist assessment of all four locations.

The preferred Site 4 alternative is considered acceptable from an environmental perspective, provided that the final infrastructure layout incorporates the identified environmental sensitivities, avoidance requirements and specialist mitigation measures.

15 PROPOSED IMPACT MANAGEMENT OBJECTIVES AND THE IMPACT MANAGEMENT OUTCOMES FOR INCLUSION IN THE EMPR

The proposed impact management objectives and outcomes for the proposed Project have been developed with consideration of the findings of the environmental impact assessment,

specialist investigations and identified environmental sensitivities within the proposed development area. These objectives establish the environmental performance requirements to be achieved during the planning and design, construction, operation, decommissioning and rehabilitation phases of the proposed Project.

The objectives and outcomes presented in **Table 15-1** provide the basis for the environmental management measures, monitoring requirements and responsibilities contained in the EMPr. They are intended to ensure that environmental impacts are avoided wherever practicable, minimised through appropriate design and management, and addressed through rehabilitation and corrective action where necessary. Particular emphasis is placed on the protection of sensitive terrestrial and aquatic habitats, maintenance of natural drainage and hydropedological functioning, prevention of pollution, and effective rehabilitation of disturbed areas.

Table 15-1: Proposed Impact Management Objectives and Desired Environmental Outcomes

Environmental Aspect	Impact Management Objective	Desired Outcome
Development footprint	Restrict all activities associated with the proposed Project to the authorised development footprint, designated access routes and approved infrastructure corridors. Prevent encroachment into sensitive or unauthorised areas through appropriate demarcation and construction controls.	All activities remain within the authorised development footprint, with no unauthorised vegetation clearing, land disturbance or encroachment into environmentally sensitive areas.
Soils and agricultural resources	Minimise soil disturbance, compaction, erosion and the loss of topsoil. Ensure that soil resources are appropriately stripped, stockpiled, protected and reinstated where rehabilitation is required.	Soil resources outside permanent infrastructure areas retain their functionality, while temporarily disturbed areas are stabilised and rehabilitated to support the intended post-construction land use.
Terrestrial biodiversity	Avoid disturbance of habitats classified as having High Site Ecological Importance and minimise disturbance of habitats with Medium Site Ecological Importance. Maintain ecological connectivity and protect sensitive terrestrial biodiversity features.	Loss and fragmentation of natural habitats are minimised, sensitive ecological features are protected, and ecological connectivity is maintained as far as reasonably practicable.
Flora	Minimise unnecessary clearing of indigenous vegetation and prevent damage to protected or sensitive plant species. Implement appropriate vegetation management, alien invasive plant control and rehabilitation measures.	Vegetation clearing is restricted to the minimum authorised footprint, protected plant species are appropriately managed, and disturbed areas are rehabilitated using suitable indigenous vegetation.
Fauna	Minimise disturbance, displacement, injury and mortality of indigenous fauna through appropriate construction controls, habitat protection and the implementation of fauna management measures.	Indigenous fauna are protected from avoidable harm, unnecessary disturbance is minimised, and opportunities for movement between remaining natural habitats are maintained.
Avifauna	Protect sensitive avifaunal habitats and breeding sites, and minimise the	Avifaunal habitat disturbance and mortality are minimised through

Environmental Aspect	Impact Management Objective	Desired Outcome
	risk of bird collisions, electrocution and disturbance associated with the proposed electrical infrastructure and construction activities.	appropriate infrastructure design, avoidance measures, monitoring and corrective management actions.
Wetlands and drainage features	Avoid direct disturbance of delineated wetlands, drainage features and associated scientific buffers. Maintain natural drainage patterns, hydrological connectivity and the ecological functioning of aquatic systems.	Wetland integrity, drainage functionality and hydrological connectivity are maintained, with no unauthorised disturbance or material deterioration in aquatic ecosystem condition attributable to the proposed Project.
Hydropedological functioning	Maintain natural infiltration, groundwater recharge, lateral subsurface flow, return flow and surface drainage processes through appropriate infrastructure placement, soil management and stormwater controls.	Natural hillslope hydrological processes and the hydrological support provided to downstream wetlands and drainage features are maintained as far as reasonably practicable.
Surface water quality and pollution prevention	Prevent contamination of surface water resources through effective stormwater management, erosion and sediment control, spill prevention and appropriate management of potentially polluting substances.	No material deterioration in receiving water quality attributable to activities associated with the proposed Project, and no uncontrolled discharge of contaminated runoff or pollutants into the surrounding environment.
Heritage and palaeontological resources	Protect archaeological, historical, cultural, burial and palaeontological resources from unauthorised disturbance. Implement the prescribed procedures for identifying and managing previously undiscovered heritage resources.	Known heritage resources are protected, and any previously unidentified archaeological, cultural or fossil material is appropriately managed in accordance with the Chance Find Procedure, Fossil Find Procedure and applicable heritage legislation.
Visual environment	Minimise unnecessary vegetation clearing, earthworks, visual intrusion and artificial lighting. Promote the appropriate integration of infrastructure into the existing landscape through careful design, construction management and rehabilitation.	The proposed Project is integrated into the existing mining-influenced landscape as far as reasonably practicable, with unnecessary visual disturbance and lighting minimised.
Air quality	Minimise dust generation and emissions associated with construction activities, vehicle movements, material handling and equipment operation through appropriate management and maintenance practices.	Dust and emissions are appropriately controlled, with no persistent or unmanaged nuisance attributable to the proposed Project.
Noise	Minimise unnecessary noise associated with construction, operation, maintenance and decommissioning activities through appropriate equipment selection, maintenance and operational controls.	Noise disturbance remains localised and is managed to prevent unacceptable nuisance to surrounding receptors.
Traffic and transportation	Manage construction and operational vehicle movements to minimise traffic disruption, road safety risks and unnecessary deterioration of access roads.	Safe and efficient movement of vehicles, equipment and personnel is maintained, with appropriate controls to protect other road users, pedestrians and existing mine operations.
Waste and hazardous	Prevent environmental contamination through appropriate waste	Waste and hazardous substances are managed responsibly and

Environmental Aspect	Impact Management Objective	Desired Outcome
substances	minimisation, segregation, storage, handling, recycling and disposal practices. Ensure that hazardous substances are managed in accordance with applicable legislative requirements.	lawfully, with no uncontrolled releases, illegal disposal or avoidable contamination of soil and water resources.
Socio-economic environment	Promote reasonable local employment, skills development and procurement opportunities while managing community expectations and addressing concerns associated with the proposed Project.	Socio-economic benefits are maximised where reasonably practicable, employment and procurement processes are communicated transparently, and stakeholder concerns are appropriately addressed.
Rehabilitation	Undertake progressive rehabilitation of temporarily disturbed areas, including soil reinstatement, erosion control, revegetation and restoration of drainage functionality where required.	Disturbed areas are physically stable, adequately vegetated and free from significant erosion, with soil and drainage conditions appropriate to the intended post-construction land use.
Decommissioning and closure	Ensure that redundant infrastructure is appropriately removed or managed, waste and contamination are addressed, and affected areas are rehabilitated in accordance with the approved decommissioning and rehabilitation requirements.	Decommissioned areas are left safe, physically stable and non-polluting, and are rehabilitated to support the agreed post-decommissioning land use objectives.
Environmental monitoring and adaptive management	Implement environmental monitoring, inspections, compliance auditing and corrective action procedures to evaluate the effectiveness of mitigation measures and identify unforeseen environmental impacts.	Environmental management measures remain effective throughout the proposed Project lifecycle, non-compliance is identified and addressed promptly, and environmental performance is continually improved where necessary.

The impact management objectives and outcomes identified in **Table 15-1** will be implemented through the measures and responsibilities prescribed in the EMPr These measures will be supported by appropriate monitoring, recordkeeping, environmental inspections and corrective actions to ensure that the environmental performance requirements are achieved throughout the proposed Project lifecycle.

Where monitoring identifies unforeseen impacts, ineffective mitigation or non-compliance with the conditions of the EA, appropriate corrective measures must be implemented. The EMPr must also be reviewed and updated where required in accordance with applicable legislative provisions and the conditions imposed by the DMPR.

16 ASPECTS FOR INCLUSION AS CONDITIONS OF AUTHORISATION

It is recommended that the EA include conditions requiring implementation of the approved development layout, EMPr and specialist recommendations. The conditions should provide for the protection of sensitive environmental features, effective management of construction and operational activities, and appropriate environmental monitoring and rehabilitation.

The following conditions are recommended for consideration by the DMPR:

- All activities must be undertaken within the approved development footprint and associated authorised infrastructure corridors. Any proposed changes to the development layout must be assessed against the applicable environmental authorisation and amendment requirements before implementation.
- Wetlands, drainage features, sensitive terrestrial habitats and associated scientific buffers must be protected in accordance with the specialist recommendations and applicable statutory authorisations.
- The identified overlap between preliminary infrastructure and High Site Ecological Importance habitat must be resolved through appropriate layout refinement and specialist verification before construction of the affected infrastructure.
- Pre-construction ecological and avifaunal walkdowns must be undertaken, and the findings incorporated into the final construction planning and environmental management requirements.
- The design and operation of the overhead electrical infrastructure must incorporate appropriate measures to minimise avifaunal collision and electrocution risks.
- Stormwater, erosion, sediment and pollution prevention measures must be implemented to protect surface water resources and maintain natural drainage and hydropedological functioning.
- The prescribed CFP and FFP must be implemented during all ground-disturbing activities.
- Temporarily disturbed areas must be progressively rehabilitated, and appropriate environmental monitoring, inspections, recordkeeping and corrective action procedures must be implemented throughout the proposed Project lifecycle.

The final conditions of authorisation will be determined by the DMPR following consideration of the FBAR, specialist recommendations and comments received during the PPP.

17 DESCRIPTION OF ANY ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE

The EIA has been undertaken using the project description, development layout, specialist investigations and supporting information available at the time of preparation of this Report. The findings and conclusions are based on the assumption that the proposed Project will be implemented substantially in accordance with the assessed development footprint and that the prescribed mitigation and environmental management measures will be effectively implemented.

The specialist investigations provide an assessment of the environmental conditions within their respective study areas, subject to the methodologies, survey periods and limitations identified in the individual specialist reports. Environmental conditions may vary seasonally, and the absence of particular species or environmental features during field investigations does not necessarily confirm their permanent absence from the development area.

The outstanding uncertainty relates to the final positioning of certain infrastructure components, particularly the access road and overhead power line, in relation to sensitive habitats identified during the specialist assessments. The final layout must be verified against the specialist sensitivity mapping, and any changes affecting previously unassessed areas or environmental features must be considered in consultation with the relevant specialists (The Biodiversity Company, 2026c).

Additional uncertainties relate to the detailed engineering arrangements for stormwater management, drainage crossings and infrastructure foundations. The hydropedological assessment includes estimates of potential changes to recharge and subsurface water movement, which are predictive rather than measurements of post-development conditions. The effectiveness of the proposed mitigation measures will therefore depend on appropriate detailed design, implementation and monitoring (The Biodiversity Company, 2026e).

The residual impact significance ratings presented in the assessment assume that the recommended mitigation measures will be fully implemented and maintained. Failure to implement these measures, or changes to the development layout and construction methodology, may alter the predicted significance of environmental impacts.

Notwithstanding these uncertainties, the specialist investigations provide a basis for assessing the environmental acceptability of the proposed Project, subject to resolution of outstanding layout considerations and implementation of the prescribed environmental management requirements.

18 REASONED OPINION AS TO WHETHER THE PROPOSED ACTIVITY SHOULD OR SHOULD NOT BE AUTHORISED

18.1 Reasons why the Activity should be Authorised or Not

Based on the information available at the time of preparation of this Report, the findings of the specialist investigations, the assessment of potential environmental and socio-economic impacts, and the proposed mitigation and management measures, the EAP is of the opinion that the proposed Project may be authorised, subject to the conditions and qualifications set out below.

The proposed Project is situated within the existing BS Mine, in an environment already influenced by mining activities, roads, electrical infrastructure and associated development. The assessment nevertheless identified environmental features requiring protection,

particularly wetlands and drainage features, associated scientific buffers, sensitive terrestrial and avifaunal habitats, hydropedologically responsive areas and natural drainage pathways.

The specialist and EAP assessments indicate that the environmental impacts can generally be reduced to acceptable residual levels through appropriate infrastructure placement, avoidance of sensitive features, effective design and implementation of the prescribed mitigation measures. Cumulative terrestrial biodiversity and avifaunal impacts remain important considerations and reinforce the need to minimise additional habitat loss and maintain ecological connectivity.

The proposed Project will provide approximately 20 MWac of renewable electricity generation capacity, primarily to supplement the electricity requirements of BS Mine. The development is expected to support electricity supply diversification, reduce reliance on grid-supplied electricity during periods of solar generation, and provide temporary employment and procurement opportunities during construction.

The preferred Site 4 development area provides a suitable overall balance between available land, topographical conditions, proximity to the intended electricity connection point and identified environmental constraints. However, the final development layout must be confirmed against the specialist sensitivity mapping, particularly in relation to the identified overlap with High SEI habitat. The environmental acceptability of the proposed Project is therefore dependent on the satisfactory resolution of this matter and implementation of the specialist recommendations.

Accordingly, the EAP is of the opinion that the proposed Project is environmentally acceptable and may be authorised, provided that the final development layout remains consistent with the assessed footprint, all applicable statutory requirements are satisfied, and the commitments contained in this Report and EMPr are implemented throughout the proposed Project lifecycle.

18.2 Conditions that must be Included in the Authorisation

The EAP recommends that the Environmental Authorisation incorporate the conditions identified in Section 16 of this Report, together with any additional conditions considered necessary by the DMPR.

Particular emphasis should be placed on implementation of the approved development layout, protection of wetlands and sensitive habitats, resolution of the identified High SEI habitat overlap, implementation of pre-construction ecological and avifaunal walkdowns, appropriate electrical infrastructure design, stormwater and pollution prevention measures, heritage protection, rehabilitation and environmental monitoring.

19 PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED

The EA is requested for the proposed construction, operation and eventual decommissioning of the Project and its associated infrastructure.

The requested validity period for commencement of the authorised activities must be specified in accordance with the applicable regulatory requirements and the anticipated implementation programme. Once commenced, the authorised activities are intended to continue for the operational lifespan of the proposed Project, subject to the conditions of the EA and applicable legislative requirements.

Maintenance, refurbishment, replacement and eventual decommissioning of infrastructure will be undertaken in accordance with the applicable statutory requirements and approved environmental management measures. Any activities requiring additional authorisation or amendment of the existing EA will be addressed through the relevant regulatory process.

20 UNDERTAKING

The prescribed undertaking by the EAP is provided in Section 33 of this Report.

21 FINANCIAL PROVISION

The financial provision for the proposed Kopanya Solar Photovoltaic 2 Project has been determined through a project-specific closure liability assessment undertaken by Natural Evolution Group (2026) (attached as **Appendix J**). The assessment considers the costs associated with decommissioning the proposed solar photovoltaic facility, removing infrastructure, rehabilitating disturbed areas and undertaking post-closure maintenance and monitoring. The financial provision has been calculated with reference to the proposed Project infrastructure, anticipated rehabilitation requirements and the closure objectives applicable to the BS Mine.

The estimated financial provision required for the proposed Project amounts to R 6 474 968, inclusive of Value-Added Tax, based on the current development layout and closure assumptions. The calculation is presented in the Final Rehabilitation, Decommissioning and Mine Closure Plan, prepared by Natural Evolution Group (2026), which forms part of the supporting documentation for this Report.

21.1 Explain how the Aforesaid Amount was Derived

The financial provision was calculated using the Department of Mineral Resources and Energy's closure costing methodology, supplemented by project-specific and market-related rates where the standard rates do not adequately account for solar photovoltaic infrastructure. The assessment considered the anticipated quantities of infrastructure requiring removal, areas requiring rehabilitation, waste transport and disposal, and post-

closure maintenance requirements. Actual rates charged by the rehabilitation contractor operating at Booysendal South Mine were used where these were considered more representative of the anticipated rehabilitation costs (NEG, 2026).

The closure liability calculation provides for rehabilitation of disturbed areas, including the solar photovoltaic arrays, infrastructure hub, stockpile areas, parking areas and access roads. It also includes the removal of buildings, fencing, electrical infrastructure, photovoltaic equipment and associated waste, together with rehabilitation monitoring and post-closure maintenance. The calculation assumes that approximately 15% of the solar photovoltaic array footprint will require surface preparation and revegetation, that vegetation management will be undertaken using mechanical methods, and that concrete foundations beneath panel support structures will not require removal because these are not included in the current Project design (NEG, 2026).

Table 21-1: Summary of the Estimated Financial Provision (NEG, 2026)

Cost Component	Estimated Cost (Rand)
Direct closure and rehabilitation costs	R4 195 534
Subtotal following application of weighting factor of 1.1	R4 615 087
Preliminary and general costs (12%)	R553 810
Contingency allowance (10%)	R461 509
Subtotal excluding Value-Added Tax	R5 630 407
Value-Added Tax (15%)	R844 561
Total estimated financial provision	R6 474 968

The total estimated financial provision of R 6 474 968 (including Value-Added Tax) represents the calculated closure liability based on the information available at the time of assessment. The Final Rehabilitation, Decommissioning and Mine Closure Plan is intended to remain a living document, with the closure cost estimate reviewed periodically to account for changes in infrastructure design, rehabilitation requirements, market-related costs and applicable regulatory requirements (NEG, 2026).

21.2 Confirm that this Amount can be Provided for from Operating Expenditure

The estimated financial provision of R 6 474 968 (including Value-Added Tax) represents the anticipated financial liability associated with the decommissioning, rehabilitation and closure of the proposed Project. The proposed Project is situated within the existing Booysendal South Mine mining right area, and its closure obligations will be incorporated into the Mine's overall financial provisioning arrangements (NEG, 2026).

Booysendal will provide a financial guarantee to cover the estimated rehabilitation, decommissioning and closure liability associated with the proposed Project. The financial guarantee will provide for the calculated closure liability and ensure that adequate financial provision is available to fulfil the applicable environmental rehabilitation and closure obligations, including in the event of premature closure.

The financial provision will be maintained and reviewed periodically to account for changes in the proposed Project infrastructure, rehabilitation requirements, closure costs and applicable regulatory requirements. The financial guarantee will be established and maintained in accordance with the applicable financial provisioning requirements, thereby ensuring that the necessary funds are available to implement the prescribed rehabilitation and closure measures.

22 SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

22.1 Impact on the Socio-Economic Conditions of any Directly Affected Person

The proposed Project will be developed within the existing BS Mine operational area and is intended to improve electricity security, reduce reliance on grid-supplied electricity and support the continued operation of the Mine. The proposed Project is expected to have positive socio-economic benefits through temporary employment opportunities during construction, limited long-term employment during operation and the procurement of goods and services. The proposed Project is anticipated to employ approximately 300 personnel during peak construction and approximately 20 personnel during operation.

Potential adverse socio-economic impacts on directly affected persons are expected to be associated primarily with temporary construction activities, including increased traffic, dust, noise and potential disruption to existing land uses and access arrangements. These impacts will be managed through the implementation of the EMPr, appropriate construction management measures and continued engagement with affected stakeholders.

The proposed Project is located within an established mining environment, and no physical displacement or resettlement is identified as part of the proposed development. The public participation process provides an opportunity for directly affected persons and interested and affected parties to identify potential concerns, which will be considered in the environmental assessment and addressed through appropriate management measures.

Overall, the proposed Project is expected to contribute positively to the socio-economic sustainability of the existing mining operations, while potential adverse impacts on directly affected persons are anticipated to be manageable through the implementation of the recommended mitigation measures.

22.2 Impact on any National Estate Referred to in Section 3(2) of the National Heritage Resources Act

A Heritage Impact Assessment was undertaken by Digby Wells Environmental (2026) to identify and assess heritage resources that may be affected by the proposed Project, in accordance with the NHRA. The assessment included a review of previous heritage investigations, available heritage databases and a pedestrian field survey of the proposed development footprint.

Previous heritage investigations within the broader Booysendal Mining Right area identified archaeological and cultural heritage resources, including Iron Age settlements, stone-walled structures, historical ruins, burial grounds and graves. However, none of the previously recorded heritage sites were identified within the proposed Project footprint, and the field survey undertaken for the proposed Project did not identify any additional heritage resources within the assessed development area (Digby Wells Environmental, 2026).

The Heritage Impact Assessment also considered palaeontological sensitivity and identified the proposed Project area as having Low to Insignificant palaeontological sensitivity based on the SAHRIS palaeosensitivity mapping. Accordingly, no significant adverse impacts on known heritage resources are anticipated, provided that the specialist recommendations are implemented (Digby Wells Environmental, 2026).

The Heritage Impact Assessment recommends the implementation of a CFP and Fossil FFP during construction, together with heritage awareness training for contractors and site personnel. The specialist further recommends consultation with local communities to establish the locations of culturally significant graves and other heritage resources identified through community engagement and to determine appropriate management arrangements. Should any previously unidentified heritage resources be encountered during construction, the relevant activities must cease in the affected area until the resources have been assessed and the necessary management measures implemented in consultation with the appropriate heritage authority (Digby Wells Environmental, 2026).

Based on the findings of the Heritage Impact Assessment, the proposed Project is not anticipated to result in significant adverse impacts on the national estate as contemplated in Section 3(2) of the NHRA, subject to implementation of the specialist recommendations and consideration of the comments and requirements of the South African Heritage Resources Agency (SAHRA) (Digby Wells Environmental, 2026).

23 OTHER MATTERS REQUIRED IN TERMS OF SECTIONS 24(4)(A) AND (B) OF THE ACT

No additional matters have been identified by the DMPR for consideration in terms of Sections 24(4)(a) and (b) of the NEMA, beyond those addressed in this BAR and the accompanying specialist assessments.

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

24 DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME

24.1 Details of the Environmental Assessment Practitioner

GCS was appointed as the independent EAP responsible for undertaking the BA process and preparing the associated EMPr for the Project, in accordance with the NEMA, and the EIA Regulations, 2014.

The assessment was led by Paula Tolksdorff, a registered EAP (EAPASA Registration No. 2019/509) and Professional Natural Scientist (SACNASP Registration No. 152904). GCS was responsible for coordinating the environmental assessment, specialist investigations, public participation process and preparation of the required environmental assessment documentation.

The contact details, qualifications, professional registrations, relevant experience and declaration of independence of the Environmental Assessment Practitioner are provided in Part A, Section 2.2 (Environmental Assessment Practitioner), including Sections 2.2.1 and 2.2.2, of this Report.

24.2 Description of the Aspects of the Activity

The Project entails the development, operation and eventual decommissioning of a solar PV facility with a generation capacity of up to 20 MWac, together with associated electrical infrastructure and supporting facilities. The Project will be developed within the existing BS Mine mining right area, situated within the Thaba Chweu Local Municipality, Ehlanzeni District Municipality, Mpumalanga Province. The development footprint is approximately 41 ha, and the electricity generated will primarily supplement the electricity requirements of BS Mine.

The Project will comprise solar photovoltaic panels mounted on single-axis tracking structures, inverters, transformers, an on-site substation, electrical cabling, overhead power line infrastructure, internal access roads, security infrastructure and associated operational and maintenance facilities. Temporary construction infrastructure will include laydown areas, construction access routes, material storage areas and other facilities required for site establishment and construction activities. The Project will also require supporting services, including water supply, stormwater management, waste management and sanitation facilities.

Construction activities will include site establishment, vegetation clearing within the authorised development footprint, earthworks, excavation, localised blasting where necessary, installation of foundations and mounting structures, construction of electrical and

supporting infrastructure, and rehabilitation of temporarily disturbed areas. During operation, activities will primarily involve electricity generation, routine maintenance, vegetation management, inspections and the management of associated infrastructure. Decommissioning will involve the removal of redundant infrastructure, appropriate waste management and rehabilitation of disturbed areas in accordance with the approved closure and rehabilitation requirements.

The Project and its associated activities are described in detail in Part A, Section 4 (Description of the Scope of the Proposed Overall Activity) and Section 5 (Description of the Activities to be Undertaken) of this Report. The regional and local setting, affected properties, existing land uses and development layout are presented in Part A, Section 3, while the applicable listed activities and required environmental authorisations are addressed in Part A, Sections 4.3 and 4.4. These sections should be read together with the EMPr, which establishes the measures required to avoid, minimise, manage and monitor environmental impacts throughout the Project lifecycle.

24.3 Composite Map

A composite environmental sensitivity map was compiled to provide an integrated spatial representation of the environmental sensitivities identified through the specialist investigations undertaken for the proposed Project. The map consolidates the relevant specialist sensitivity findings, including terrestrial biodiversity, avifauna, wetlands and drainage features, hydropedological characteristics and other identified environmental constraints, to illustrate the distribution and extent of sensitive environmental features within the proposed development area.

The composite map was used to inform the selection and refinement of the preferred development layout, identify areas requiring avoidance or additional management measures, and assess potential interactions between the proposed infrastructure and sensitive environmental features. Particular consideration was given to habitats of High SEI, delineated wetlands and drainage features, their associated scientific buffers, and areas where development could affect ecological or hydrological functioning.

The composite map provides an overview of the environmental constraints identified by the respective specialists and should be interpreted in conjunction with the individual specialist sensitivity maps and reports. Where sensitivities overlap, the relevant specialist recommendations and avoidance requirements must be considered collectively. The composite map does not replace the detailed specialist assessments or their prescribed mitigation measures.

The composite environmental sensitivity map is presented in **Figure 12-1** and has been used to inform the environmental impact assessment and the mitigation and management

measures included in the EMPr.

24.4 Environmental Management Programme Implementation and Management Framework

This EMPr establishes the management framework through which the environmental commitments, mitigation measures and monitoring requirements identified through the environmental assessment process will be implemented throughout the lifecycle of the Project.

Effective implementation of the EMPr requires environmental requirements to be integrated into Project planning, detailed design, procurement, contracting, construction, operation, maintenance, rehabilitation and, where applicable, decommissioning activities. Environmental management is therefore the collective responsibility of Booysendal, the Project Manager, contractors, subcontractors, Environmental Control Officer (ECO), Environmental Officer (EO), specialists and all persons undertaking activities associated with the Project.

The requirements of this EMPr must be read together with the EA, once issued, the approved Project layout, the BAR, relevant specialist reports and recommendations, and all other permits, licences, approvals and conditions applicable to the Project.

Where there is a conflict between a requirement contained in this EMPr and a condition of an applicable authorisation, permit or licence, the applicable statutory requirement and/or more stringent legally applicable environmental requirement must be implemented.

24.4.1 General Principles

Implementation of the Project must be guided by the following general environmental management principles:

- All Project activities must remain within the authorised development footprint, approved infrastructure corridors, access roads and designated working areas.
- Wetlands, watercourses, applicable scientific buffers, sensitive habitats and other identified no-go areas must be protected from unauthorised disturbance.
- Environmental considerations must be incorporated into detailed design, construction planning, sequencing and operational procedures at the earliest practicable stage.
- Prevention and avoidance of environmental impacts must take preference over remediation after an impact has occurred.
- Disturbance must be limited to the minimum area reasonably required to undertake the authorised activity.

- Existing roads, disturbed areas and established infrastructure must be utilised where reasonably practicable to minimise additional disturbance.
- Pollution, environmental degradation and unnecessary disturbance to biodiversity, soils, water resources, heritage resources and surrounding land uses must be prevented.
- Environmental risks must be identified before activities commence and appropriate controls must be implemented before exposure to the risk occurs.
- Environmental incidents, non-conformances and unforeseen impacts must be reported promptly, investigated and addressed through appropriate corrective and preventative actions.
- Temporary disturbed areas must be progressively rehabilitated as soon as they are no longer required.
- Environmental performance must be monitored throughout the Project lifecycle and management measures adapted where monitoring demonstrates that existing controls are inadequate or ineffective.
- All personnel must receive environmental induction and awareness training appropriate to their activities and responsibilities.
- Appropriate environmental records must be maintained to demonstrate implementation of, and compliance with, the EMPr and applicable authorisations.

No person may undertake an activity contrary to the requirements of the EA, this EMPr or another applicable environmental approval on the basis that the activity has been instructed by another Project participant.

24.4.2 Mitigation Hierarchy

Environmental management for the Project must apply the mitigation hierarchy throughout the planning, construction, operational and decommissioning phases.

The following sequence must be applied when managing potential environmental impacts:

1. Avoid – avoid impacts through appropriate siting, design, routing, scheduling and selection of construction or operational methods. Sensitive environmental features and identified no-go areas must be avoided wherever practicable and as required by the approved layout and applicable authorisations.
2. Minimise – where an impact cannot reasonably be avoided, reduce the extent, duration, intensity and probability of the impact through appropriate engineering, operational and environmental controls.

3. Rehabilitate or Restore – areas temporarily disturbed by Project activities must be reinstated and rehabilitated as soon as reasonably practicable after the disturbance is no longer required.
4. Remedy – where an environmental impact, pollution event or unauthorised disturbance occurs, appropriate containment, remediation and corrective measures must be implemented.
5. Offset or Compensate, where applicable – residual impacts may only be addressed through compensation or offset measures where this is specifically required or approved by the relevant competent authority and supported by the applicable specialist assessment or regulatory process.

Reliance on rehabilitation, remediation or compensation must not be used to justify an avoidable impact to a sensitive environmental feature.

24.4.3 Roles and Responsibilities

Effective implementation requires clear allocation of accountability. **Table 24-1** identifies the environmental responsibilities; these responsibilities must be incorporated into appointments, contracts and relevant Project procedures.

Table 24-1: Environmental Management Programme Roles and Responsibilities

Role	Primary Responsibility
Applicant / Holder of Environmental Authorisation	Retain overall accountability for implementation of the Environmental Management Programme (EMPr) and compliance with the EA and other applicable environmental approvals; provide adequate resources; appoint appropriately competent personnel; ensure environmental commitments are incorporated into design, contracts and Project procedures; and ensure contractors and service providers comply with applicable requirements.
Project Manager / Engineer	Integrate environmental constraints into detailed design, construction planning, sequencing and engineering decisions; ensure work is undertaken within the approved footprint; coordinate environmental hold points and specialist requirements; and facilitate close out of engineering-related corrective actions.
Contractor	Implement all environmental controls relevant to construction and decommissioning activities; prepare required method statements; ensure personnel are inducted; maintain environmental records; report incidents and non-conformances; rehabilitate disturbed areas; and ensure subcontractor compliance.
Environmental Control Officer (ECO) / Environmental Officer (EO)	Monitor implementation of the EMPr and applicable environmental conditions; undertake inspections; monitor sensitive areas and environmental controls; maintain compliance records; identify and report non-conformances; issue or recommend corrective actions; verify close out; and escalate material or repeated non-compliances.
Stakeholder / Community Liaison Team	Implement applicable stakeholder communication and grievance-management procedures and ensure relevant environmental complaints are recorded, communicated and investigated.
Operations and Maintenance (O&M) Team	Implement operational environmental controls, inspection and maintenance programmes, waste and hazardous material management, incident response, alien plant management, rehabilitation maintenance and environmental record keeping during the operational phase.
Environmental Assessment	Provide environmental or specialist advice where required; undertake pre-construction walkdowns or verification where specified; advise on

Role	Primary Responsibility
Practitioner (EAP) / Environmental Specialists	unexpected, sensitive features, incidents or environmental changes; review relevant deviations where required; and provide adaptive management recommendations within their respective areas of expertise.
Employees and Subcontractors	Comply with environmental induction requirements, the EMPr, approved method statements and environmental instructions; remain within approved work areas; protect no-go areas; use environmental controls correctly; and immediately report environmental incidents, hazards or non-conformances.

24.4.4 Applicant / Environmental Authorisation Holder

Booysendal, as the holder of the EA once issued, retains overall accountability for implementation of the Project in accordance with the EA, this EMPr and all other applicable environmental approvals.

Booysendal must:

- Ensure that adequate financial, human and technical resources are available to implement the EMPr.
- Appoint appropriately competent Project management, environmental and specialist personnel where required.
- Ensure that copies of the approved EA, EMPr and relevant environmental approvals are available to persons responsible for their implementation.
- Ensure that applicable environmental requirements are incorporated into contracts, tender documents, scopes of work and operational procedures.
- Ensure that contractors and subcontractors are contractually required to comply with the applicable provisions of the EMPr.
- Ensure that Project design and construction remain consistent with the authorised layout and environmental constraints.
- Ensure all applicable permits, licences, permissions and approvals are effective before regulated activities commence.
- Ensure that required environmental monitoring, auditing and reporting is undertaken.
- Ensure environmental incidents and material non-compliances are investigated and, where required, reported to the relevant authorities.
- Ensure corrective actions identified through inspections, monitoring or audits are implemented within reasonable or prescribed timeframes.
- Ensure that changes to the Project are appropriately screened to determine whether further environmental assessment, specialist input, notification or amendment of an existing approval is required before implementation.

- Ensure that the EMPr is reviewed and amended where monitoring, incidents, changes to the Project or regulatory requirements demonstrate that revision is necessary.

Appointment of contractors or environmental personnel does not transfer Booysendal's statutory responsibilities as holder of the EA.

24.4.5 Project Manager

The Project Manager is responsible for ensuring that environmental requirements are integrated into Project planning and execution.

The Project Manager must:

- Ensure that the approved Project layout and environmental constraints are incorporated into detailed design and construction drawings.
- Coordinate construction activities to minimise unnecessary environmental disturbance.
- Ensure that the Contractor is aware of and adequately resourced to implement the environmental requirements applicable to its work.
- Confirm that required environmental prerequisites and hold points have been completed before relevant activities commence.
- Ensure that approved method statements are available before environmentally sensitive or potentially high-risk activities commence.
- Coordinate with the ECO and relevant specialists where environmental constraints affect engineering design or construction methodology.
- Ensure that no unauthorised deviation from the approved layout or infrastructure footprint is implemented.
- Assist with implementation and close out of corrective actions requiring engineering or Project management intervention.
- Ensure that environmental considerations are included in Project progress meetings where relevant.
- Support the ECO where activities need to be suspended or modified to prevent material environmental harm or non-compliance.

24.4.6 Contractor

The Contractor is responsible for day-to-day implementation of the construction-related requirements of this EMPr and for ensuring compliance by all subcontractors and personnel under its control.

The Contractor must:

- Comply with the EA, EMPr, approved drawings, environmental specifications and approved method statements.
- Appoint a responsible person to coordinate environmental implementation within the Contractor's team.
- Ensure all employees and subcontractors complete environmental induction before commencing work.
- Ensure work is confined to approved work areas, access routes and infrastructure footprints.
- Maintain and protect demarcated wetlands, scientific buffers, sensitive areas and other no-go areas.
- Provide and maintain appropriate pollution prevention, spill response, waste management, sanitation, stormwater and erosion control measures.
- Maintain good housekeeping throughout construction areas.
- Prepare and submit method statements for activities requiring specific environmental controls.
- Undertake routine environmental checks of active work areas.
- Immediately report environmental incidents, spills, unauthorised disturbance, chance finds and non-conformances.
- Implement corrective and preventative actions within the required timeframe.
- Maintain records necessary to demonstrate environmental compliance.
- Ensure temporary disturbed areas are rehabilitated once no longer required.
- Ensure environmental obligations applicable to its scope are transferred to and implemented by subcontractors.

The Contractor remains responsible for the environmental performance of its subcontractors.

24.4.7 Environmental Control Officer

A suitably qualified ECO must be appointed for the construction phase and, where appropriate, for decommissioning or other phases where independent environmental compliance monitoring is required. During operation, applicable functions may be undertaken by an appointed EO or equivalent competent environmental representative.

The ECO must:

- Familiarise themselves with the EA, EMPr, approved Project layout, specialist recommendations and other relevant environmental approvals.
- Undertake environmental inspections at the frequency required by the EA, this EMPr or the environmental risk associated with the activities being undertaken.
- Verify demarcation of the authorised development footprint, environmentally sensitive areas, scientific buffers and no-go areas before relevant construction activities commence.
- Verify compliance with environmental hold points identified in the EMPr.
- Review implementation of approved environmental method statements.
- Monitor construction activities for compliance with environmental requirements.
- Identify environmental non-conformances and communicate required corrective actions to the Contractor and Project Manager.
- Maintain appropriate inspection, photographic and corrective action records.
- Verify satisfactory close out of identified environmental non-conformances.
- Monitor rehabilitation and reinstatement of temporarily disturbed areas.
- Record environmental incidents and complaints and verify that appropriate response actions have been taken.
- Liaise with relevant environmental specialists where specialist advice or verification is required.
- Escalate material, repeated or unresolved environmental non-compliances to Booysendal and Project Manager.
- Recommend temporary suspension or modification of an activity where there is an immediate risk of significant environmental harm or material non-compliance, in accordance with the authority afforded through the ECO's appointment and Project procedures.
- Compile environmental compliance reports as required by the EA, EMPr or Project procedures.

The ECO's monitoring role does not relieve the Contractor, Project Manager or Applicant of their respective environmental responsibilities.

24.4.8 Environmental Assessment Practitioner / Environmental Specialist

The EAP and appointed environmental specialists may be required to provide technical advice during implementation of the Project where matters arise that require interpretation of the

environmental assessment, specialist recommendations or applicable environmental constraints.

Their responsibilities may include:

- Undertaking pre-construction walkdowns or verification where required by specialist recommendations or the EA.
- Confirming the location or extent of sensitive environmental features where uncertainty exists.
- Advising on the implementation of specialist mitigation measures.
- Providing advice where previously unidentified sensitive features or environmental risks are encountered.
- Providing specialist input following environmental incidents affecting their field of expertise.
- Advising on proposed changes to the layout, construction methodology or environmental management measures where these may affect the findings of the original assessment.
- Recommending additional or adaptive mitigation measures where monitoring demonstrates that existing controls are ineffective.
- Providing written clearance or recommendations where this is specifically required by the EMPr, specialist report or environmental approval.

Any material change to the authorised Project must be referred to the EAP and/or relevant specialist, where appropriate, to determine whether additional assessment or regulatory approval may be required before implementation.

24.4.9 Employees and Subcontractors

All employees, subcontractors, consultants and service providers working on the Project are responsible for complying with environmental requirements relevant to their activities.

As a minimum, personnel must:

- Complete the required environmental induction before commencing work.
- Comply with approved work areas, access routes, no-go areas and environmental demarcation.
- Follow environmental instructions and approved method statements applicable to their activities.
- Use waste, sanitation, hazardous material and spill-control facilities correctly.

- Avoid unnecessary damage to vegetation, wildlife, watercourses, soils and other environmental features.
- Refrain from hunting, trapping, collecting, feeding, disturbing or deliberately harming fauna.
- Immediately report spills, leaks, environmental incidents, unauthorised disturbance, heritage or palaeontological chance finds and other environmental concerns.
- Participate in toolbox talks or refresher training where required.
- Cooperate with environmental inspections and corrective actions.

Failure to comply with environmental requirements may be managed in accordance with the applicable contractual and disciplinary procedures.

24.4.10 Method Statements

Method statements must be prepared for activities where the manner in which the work is undertaken could result in a material environmental impact or where specific controls are required by the EMPr, ECO, specialist recommendation or applicable approval.

Method statements must be prepared before the relevant activity commences and must provide sufficient detail to demonstrate how the activity will be undertaken in compliance with the environmental requirements.

Depending on the final construction methodology, method statements may be required for activities including:

- Site establishment and establishment of laydown areas;
- Vegetation clearing and topsoil stripping;
- Earthworks, trenching and excavation;
- Installation of photovoltaic support structures;
- Construction and maintenance of access and internal roads;
- Construction within or adjacent to environmentally sensitive areas or scientific buffers, where authorised;
- Stormwater and erosion control works;
- Concrete works and management of cement-contaminated water;
- Fuel and hazardous-substance storage and handling;
- Waste storage and management;
- Refuelling and maintenance of plant and equipment;

- Dewatering, where required;
- Installation of overhead power line infrastructure;
- Rehabilitation and revegetation;
- Alien invasive plant management; and
- Any other activity identified by the ECO, Project Manager or relevant environmental specialist as requiring specific environmental controls.

As appropriate to the activity, a method statement should identify:

- The activity and location;
- The applicable environmental constraints;
- The equipment and materials to be used;
- The proposed sequence and timing of work;
- Environmental risks associated with the activity;
- Mitigation and pollution prevention measures;
- No-go areas or environmental demarcation requirements;
- Waste management requirements;
- Emergency and spill response measures;
- Rehabilitation requirements; and
- The person responsible for implementation.

Method statements must be reviewed by the Project Manager and, where environmental controls are relevant, the ECO prior to commencement of the activity. Specialist input must be obtained where required.

Review or acceptance of a method statement does not transfer responsibility for environmental compliance from the Contractor and does not authorise any activity that is inconsistent with the EA, EMPr or another applicable approval.

24.4.11 Environmental Incident and Non-conformance Management

Environmental incidents and non-conformances must be identified, reported, investigated and closed out in a timely and auditable manner.

An environmental non-conformance includes any failure to comply with the requirements of the EA, this EMPr, any other permits, licences, registrations and/or approvals, an approved method statement or a lawful environmental instruction issued in accordance with Project procedures.

Where an environmental incident or non-conformance occurs, the following principles must apply:

- The activity must be stopped or modified immediately where continuation could result in further environmental harm.
- Immediate measures must be taken to make the area safe and contain or limit the environmental impact.
- The responsible supervisor and ECO/EO must be informed as soon as practicable.
- Material incidents must be escalated to the Project Manager and Applicant.
- Where notification to a competent authority is required by legislation or an applicable approval, such notification must be undertaken within the prescribed timeframe.
- The incident or non-conformance must be recorded in the relevant environmental register.
- The cause and environmental consequences must be investigated to an appropriate level.
- Corrective measures must be identified, assigned to a responsible person and given an appropriate completion date.
- Remediation or rehabilitation must be undertaken where environmental damage has occurred.
- The ECO/EO must verify that corrective actions have been satisfactorily completed before the item is closed.
- Repeated or significant non-conformances must be reviewed to determine whether additional training, engineering controls, changes to work procedures or amendments to environmental management measures are required.

Environmental incident and non-conformance records must, as applicable, include:

- Date, time and location;
- Description of the event;
- Activity being undertaken;
- Environmental receptor affected or potentially affected;
- Immediate containment or response measures;
- Photographic evidence, where appropriate;

- Persons notified;
- Cause or contributing factors;
- Corrective and preventative actions;
- Responsible person and completion date;
- Verification of close out; and
- Authority correspondence or statutory reporting, where applicable.

Lessons learnt from material incidents and repeated non-conformances must be communicated to relevant Project personnel through environmental inductions, toolbox talks, revised method statements or other appropriate Project communication mechanisms.

The incident and non-conformance management process must support continual improvement and must be integrated with the environmental monitoring, auditing and reporting requirements contained in subsequent sections of this EMPr.

24.5 Description of Impact Management Objectives including Management Statements

The impact management objectives and outcomes for the Project have been developed from the specialist findings, the impact assessment, the identified environmental sensitivities and the application of the mitigation hierarchy.

The primary objective is to avoid environmental impacts wherever reasonably practicable and, where avoidance is not possible, to minimise disturbance, rehabilitate affected areas and manage residual impacts to an acceptable level.

The overarching impact management objectives and desired environmental outcomes are summarised in **Table 24-2**. These outcomes apply throughout the Project lifecycle and are implemented through the phase-specific requirements in Sections 24.6 to 24.11 and the detailed environmental management requirements contained in Sections 24.12 to 24.15.

Table 24-2: Impact Management Objectives and Desired Outcomes

Environmental Aspect	Impact Management Objective	Desired Outcome
Development footprint	Restrict Project activities to the authorised development footprint, approved access routes and infrastructure corridors.	No unauthorised disturbance or expansion into areas that have not been assessed and authorised.
Soils and agricultural resources	Protect topsoil, minimise unnecessary soil disturbance, compaction and erosion, and retain rehabilitation potential.	Soil resources outside permanent infrastructure remain functional and temporarily disturbed areas can be successfully rehabilitated.
Terrestrial biodiversity	Avoid High SEI Water Resources and minimise disturbance of Medium SEI habitat.	Unnecessary habitat loss and fragmentation are avoided and ecological connectivity is maintained.
Flora	Minimise unnecessary clearing of indigenous vegetation and protect	Vegetation disturbance is restricted to the minimum practicable and

Environmental Aspect	Impact Management Objective	Desired Outcome
	sensitive or protected plants where encountered.	authorised footprint.
Fauna	Reduce displacement, injury, trapping and mortality of indigenous fauna.	Project-related fauna mortality and disturbance are minimised and ecological movement is maintained as far as reasonably practicable.
Avifauna	Reduce habitat disturbance, collision, electrocution and breeding disturbance.	Electrical infrastructure is bird-sensitive and avifaunal mortality is minimised, monitored and appropriately managed.
Wetlands and drainage features	Avoid direct disturbance of wetlands and drainage features and maintain the prescribed scientific buffers.	Wetland condition, water quality, drainage function and hydrological connectivity are maintained.
Hydropedological functioning	Maintain natural infiltration, recharge, lateral subsurface flow, return flow and surface drainage.	Material changes to hillslope water movement and hydrological support to downstream wetlands and drainage features are avoided.
Surface water quality and pollution prevention	Prevent contaminated runoff, sedimentation, spills and uncontrolled releases.	No material deterioration in receiving water quality attributable to Project activities.
Heritage and palaeontology	Prevent unauthorised disturbance of archaeological, heritage, burial or fossil resources.	Known resources are protected and unexpected discoveries are managed in accordance with the Chance Find Procedure and Fossil Find Procedure.
Visual environment	Minimise unnecessary vegetation clearing, earthworks, skyline intrusion, dust and lighting.	The Project is integrated into the existing mine-influenced landscape as far as reasonably practicable.
Air quality	Minimise dust and unnecessary vehicle and equipment emissions.	Project-related dust nuisance is limited and adverse trends or complaints are investigated and addressed.
Noise	Minimise unnecessary construction, maintenance and operational noise.	Noise disturbance remains localised and is appropriately managed.
Traffic and transportation	Manage Project-related vehicle movements safely and efficiently.	Interaction with Mine traffic, other road users and pedestrians is appropriately controlled.
Waste and hazardous substances	Prevent pollution and implement the waste hierarchy and appropriate hazardous material management.	Waste and hazardous materials are stored, handled, reused, recycled or disposed of lawfully with no uncontrolled releases.
Socio-economic environment	Maximise reasonable local benefits while managing employment and procurement expectations.	Opportunities are communicated transparently and Project-related concerns are addressed through established engagement and grievance mechanisms.
Rehabilitation	Progressively stabilise and rehabilitate temporary disturbance.	Disturbed areas achieve stable soil, vegetation and drainage conditions appropriate to the intended post-disturbance land use.
Decommissioning and closure	Remove redundant infrastructure, manage waste and contamination, and restore affected areas where decommissioning occurs.	Decommissioned areas are left safe, physically stable, non-polluting and compatible with the agreed post-decommissioning land use objective.
Monitoring and adaptive management	Identify non-compliance, ineffective mitigation and unforeseen impacts sufficiently early to implement corrective action.	Environmental controls remain effective throughout the Project lifecycle and environmental deterioration is identified and addressed.

24.6 Planning and Design Phase

The planning and detailed design phase must apply the mitigation hierarchy, with priority given to avoiding identified environmental sensitivities and limiting the overall development footprint.

The final Project layout and infrastructure design must be informed by the specialist findings and environmental sensitivity information presented in the BAR and must, as far as reasonably practicable:

- Preferentially utilise previously disturbed and lower-sensitivity areas;
- Avoid identified environmental no-go areas and applicable scientific buffers;
- Minimise additional vegetation clearing and land disturbance;
- Utilise existing roads, access routes and infrastructure corridors where feasible;
- Maintain ecological and hydrological connectivity; and
- Incorporate appropriate stormwater, rehabilitation and environmental monitoring requirements into the final design.

The final location of Project infrastructure, particularly the overhead power line and associated electrical infrastructure, must be verified against the relevant environmental sensitivities before construction. The specialist assessments similarly identifies detailed design and micro-siting as the opportunity to avoid impacts before physical disturbance occurs.

24.7 Pre-construction Phase

Before construction commences, the final approved-for-construction layout and applicable environmental constraints must be confirmed and communicated to the Project team.

The authorised development footprint, approved access routes, environmental no-go areas and other applicable constraints must be demarcated before the relevant activities commence.

Required pre-construction specialist walkdowns, permits, management plans, method statements and environmental hold points must be completed before vegetation clearing or ground disturbance occurs.

All personnel must receive environmental induction appropriate to their roles and activities before commencing work on site.

24.8 Construction Phase

Construction represents the phase of greatest physical disturbance and must therefore be undertaken within the authorised development footprint and approved work areas.

The construction phase outcome is to prevent unnecessary environmental disturbance and ensure that unavoidable impacts are effectively controlled and progressively rehabilitated.

The detailed construction phase environmental management requirements are provided in Sections 24.12 and 24.13 and **Table 24-4**.

24.9 Operational Phase

Operation and maintenance must be undertaken within the authorised development footprint and established access network in a manner that maintains the environmental outcomes achieved during design, construction and rehabilitation.

Operational environmental management must focus on maintaining environmental controls, preventing deterioration of sensitive environmental features and identifying emerging impacts through inspection and monitoring.

The detailed operational environmental management requirements are provided in Sections 24.12 and 24.14 and **Table 24-5**.

24.10 Rehabilitation and Decommissioning Phase

Rehabilitation must be undertaken throughout the Project lifecycle as soon as temporary disturbance is no longer required.

Before physical decommissioning commences, the preferred end-of-life strategy must be confirmed, taking into account the condition of the infrastructure, future land use requirements, environmental risks and opportunities for continued use, repowering, reuse or recycling. Where decommissioning proceeds, a Decommissioning and Rehabilitation Plan must be prepared before work commences and must reflect the environmental conditions and regulatory requirements applicable at that time.

The detailed rehabilitation, decommissioning and closure requirements are provided in Sections 24.12 and 24.15 and **Table 24-6**.

24.11 Closure Phase, Where Applicable

Environmental close out may only occur once applicable decommissioning and rehabilitation requirements have been completed and the affected areas are demonstrated to be safe, stable, non-polluting and appropriately rehabilitated.

Post-rehabilitation monitoring must confirm that the applicable environmental outcomes and closure criteria are being achieved. Any material rehabilitation failure, erosion, residual contamination, alien invasive plant establishment or other outstanding environmental liability must be addressed before final environmental close out.

Where the required outcomes have not been achieved, corrective or adaptive management must continue until acceptable environmental performance has been demonstrated.

24.12 General Environmental Requirements

The general requirements in **Table 24-3** apply across the Project lifecycle unless a phase-specific requirement is more stringent. They provide the minimum controls for approvals, environmental constraints, incident management, documentation and stakeholder interface.

Table 24-3: General Environmental Management Requirements

Aspect	Management Action	Responsible Person	Timing	Monitoring Responsibility	Frequency	Evidence of Compliance
Authorised footprint and no-go areas	• Before any site establishment, clearing or earthworks, clearly demarcate the authorised development footprint, approved access routes, temporary laydown and stockpile areas, wetlands, non-perennial drainage lines, the 20 m wetland scientific buffer and 15 m non-perennial drainage scientific buffer, and other no-go areas. • Maintain demarcation throughout the relevant activity and prevent unauthorised personnel, vehicle, machinery, storage or material encroachment outside approved areas.	Project Manager / Contractor	Before commencement and maintained throughout construction	Environmental Control Officer (ECO) / Environmental Officer (EO)	Before commencement; weekly and after layout or demarcation changes	Approved layout; demarcation plan; photographs; inspection records; non-compliance records where applicable
Environmental induction	• All employees, contractors, subcontractors and relevant visitors must complete an environmental induction before undertaking work on site. • The induction must cover environmental sensitivities and no-go areas; protection of fauna, flora and avifauna; waste management; hazardous substances and spill response; vehicle speed limits; heritage and palaeontological chance finds; fire prevention; incident reporting; and applicable Environmental Management Programme (EMPr) requirements. • Refresher training and activity-specific toolbox talks must be provided where risks, procedures or work areas change.	Contractor / ECO / EO	Before site access; refresher training as required	ECO / EO	Prior to access; monthly verification of records	Signed induction registers; training material; toolbox-talk records
Environmental incidents	• All environmental incidents, including spills, unauthorised clearing, disturbance of wetlands or scientific buffers, wildlife injury or mortality, heritage or fossil finds, erosion, waste incidents, fires and other material non-compliances must be reported immediately to the ECO / EO. • The source of the incident must be controlled, affected areas secured where necessary, and corrective and remedial measures implemented as soon as practicable. • Material incidents must be escalated to Booysendal and relevant authority where required.	All personnel / Contractor	Immediately upon occurrence	ECO / EO / Project Manager	Per incident	Incident register; photographs; investigation record; authority notification where applicable; corrective action close out
Complaints and grievances	• Maintain an accessible mechanism for receiving, recording, investigating and responding to environmental and community complaints. • Each complaint must record the complainant details where provided, date, nature of the concern, investigation undertaken, response provided and corrective action implemented. • Recurring complaints must be reviewed to identify whether additional management measures are required.	Stakeholder / Community Liaison Team	All phases	ECO / EO	Ongoing; monthly review	Complaints and grievance register; correspondence; investigation and close out records
Statutory approvals and conditions	• Maintain a current register of all applicable environmental and related approvals, including the Environmental Authorisation (EA), water use authorisation, heritage approvals, biodiversity or protected species permits and other applicable licences or permissions. • No activity regulated by an approval may commence until the relevant approval is effective and applicable pre-commencement conditions have been satisfied. • Conditions must be incorporated into Contractor documentation, method statements, inductions, monitoring programmes and compliance inspections. • Expiry dates, renewal requirements and reporting obligations must be tracked.	Applicant / Project Manager	Pre-construction and throughout the Project lifecycle	ECO / EO	Prior to commencement of regulated activities; monthly review	Legal and permit register; approval copies; conditions checklist; submission and reporting records
Final layout and environmental constraints	• Before site establishment or vegetation clearing, issue the approved-for-construction layout together with an environmental constraints plan showing the authorised footprint, wetlands, scientific buffers, no-go areas, specialist sensitivities and approved access routes. • The Contractor must work only from the latest controlled drawing. • Any proposed layout, route or infrastructure change must be screened by the Environmental Assessment Practitioner (EAP) and relevant specialist(s) before implementation to determine whether further assessment, notification or authorisation is required.	Project Manager / Engineer	Before construction and before any layout change	ECO / EO	Before commencement and per proposed change	Approved-for-construction layout; environmental constraints plan; drawing register; EAP/specialist screening records
Environmental method statements	• Prepare activity-specific environmental method statements for activities presenting a material environmental risk, including site establishment, vegetation clearing, earthworks, stormwater and erosion control, concrete works, hazardous-substance handling, waste management, watercourse-related work, rehabilitation, abnormal load deliveries and decommissioning where applicable. • Each method statement must identify the activity, location, environmental risks, controls, responsible persons, monitoring requirements and emergency arrangements. • Relevant work may commence only after the method statement has been reviewed and accepted by Booysendal.	Applicant / Contractor / Project Manager	Before the relevant activity commences	ECO / EO	Per activity and whenever the method changes	Approved method statements; review records; briefing/toolbox-talk records

Aspect	Management Action	Responsible Person	Timing	Monitoring Responsibility	Frequency	Evidence of Compliance
Emergency preparedness and fire response	• Maintain and implement an emergency response procedure addressing spills, fire, extreme weather, flooding, vehicle incidents, wildlife incidents and other reasonably foreseeable environmental emergencies. • Emergency contact details, spill response materials and appropriate firefighting equipment must be readily available at relevant work areas. • Personnel must be trained in escalation and response procedures. • Used or expired emergency equipment must be replaced promptly. • Significant incidents must be investigated and lessons incorporated into future controls.	Applicant / Contractor / Project Manager / Operations and Maintenance (O&M) Team	All phases	ECO / EO	Monthly equipment checks; periodic drills; after incidents	Emergency response plan; emergency contact list; equipment inspection records; drill and incident records
Environmental records and compliance review	• Maintain a complete and auditable environmental management file containing applicable approvals, controlled layouts, inductions, method statements, inspection and monitoring records, photographs, incident and complaint registers, waste documentation, specialist reports, correspondence, corrective actions and close out evidence. • Environmental non-compliances must be recorded, assigned to a responsible person and closed within an appropriate timeframe. • Repeated or systemic non-compliances must be investigated to identify root causes and preventative actions.	ECO / EO	All phases	Project Manager / Applicant	Monthly during construction; periodic review during operation	Environmental file; inspection and audit reports; corrective action register; close out evidence
Environmental hold points	• Activities that could result in irreversible or significant disturbance must not proceed until the applicable environmental prerequisites have been confirmed. • Hold points should include, where relevant, approval of the final layout, demarcation of no-go areas, completion of specialist walkdowns, receipt of required permits, approval of method statements and verification of rehabilitation or corrective actions.	Applicant / Contractor / Project Manager / ECO/EO	Before applicable high-risk activities	ECO / EO	Per hold point	Signed hold point release; inspection checklist; specialist or permit confirmation
Environmental communication and change control	• Environmental constraints and changes to approved controls must be communicated promptly to affected personnel. Revised drawings, procedures or EMPr requirements must be document-controlled and superseded versions removed from use. • Any proposed change that may result in a new or increased environmental impact must be referred to the EAP and relevant specialist before implementation.	Applicant / Contractor / Project Manager / ECO/EO	All phases	ECO / EO	Per change; monthly verification	Document register; revision notices; briefing records; change-screening records

24.13 Construction Phase Environmental Management Requirements

The management measures presented in **Table 24-4** apply to all construction and site establishment activities associated with the Project. The measures incorporate the recommendations arising from the specialist assessments, the impact assessment presented in the impact assessment and the general environmental requirements of the EMPr. The Contractor must incorporate the applicable requirements into construction planning, method statements, inductions and daily work activities. Where a conflict arises between this table, a specialist recommendation, a permit condition or the EA, the more stringent legally applicable requirement must be implemented.

Table 24-4: Construction Phase Environmental Management Measures

Aspect	Management Objective	Management / Mitigation Actions	Responsible Person	Timing	Monitoring Responsibility	Frequency	Evidence of Compliance
Construction camp and laydown establishment	Establish temporary facilities without unnecessary environmental disturbance.	• Locate site offices, parking areas, laydown areas, workshops, material storage and other temporary facilities within approved areas, preferentially on previously disturbed or lower-sensitivity land. • No temporary facilities may be established within wetlands, drainage features, prescribed scientific buffers or other no-go areas. • Establish stormwater, waste, sanitation, hazardous-substance and fire controls before construction commences. • Temporary facilities must be removed and rehabilitated when no longer required.	Project Manager / Contractor	Before site establishment and throughout construction	Environmental Control Officer (ECO)	Prior to occupation; weekly thereafter	Approved site establishment plan; photographs; inspection records
Footprint / no-go areas	Prevent unnecessary disturbance outside the authorised development footprint.	• Micro-site infrastructure to avoid protected plants, Species of Conservation Concern (SCC), sensitive habitats and faunal movement corridors. • Obtain the necessary approval or permit before removing any protected plant species. • Clearly demarcate the authorised development footprint, approved access roads, laydown areas, stockpile areas, wetlands, non-perennial drainage lines, applicable scientific buffers and other no-go areas before vegetation clearing or earthworks commence. • Restrict all disturbance to the authorised development footprint and prohibit unnecessary vegetation clearing outside authorised areas. • Use existing access routes as far as reasonably practicable before creating new access routes. • Maintain visible barriers, signage or other suitable demarcation throughout	Contractor / Project Team	Before clearing and throughout construction	ECO	Before clearing; weekly thereafter and after changes	Approved layout; demarcation records; photographs; inspection records; corrective action records

Aspect	Management Objective	Management / Mitigation Actions	Responsible Person	Timing	Monitoring Responsibility	Frequency	Evidence of Compliance
		construction.					
Environmental hold points	Prevent irreversible disturbance before environmental prerequisites have been completed.	• No vegetation clearing or earthworks may commence until the approved-for-construction layout has been issued, environmental constraints and no-go areas have been demarcated, applicable ecological and avifaunal walkdowns have been completed, required permits are effective and relevant method statements have been approved. • The ECO must verify readiness before release of applicable environmental hold points. • Additional hold points must be established for sensitive activities where required.	Project Manager / Contractor	Before applicable construction activities	ECO	Per hold point	Signed hold point release; checklists; permit confirmations; specialist reports
Final layout and environmental constraints	Ensure construction is undertaken within the assessed and approved layout.	• Issue the latest approved-for-construction layout and environmental constraints plan to the Contractor before construction. • The plan must show the authorised footprint, wetlands, scientific buffers, no-go areas, access routes and specialist constraints. • Only current controlled drawings may be used. • Proposed deviations or layout changes must be referred to the Environmental Assessment Practitioner (EAP) and relevant specialist(s) before implementation to determine whether further assessment, notification or authorisation is required.	Applicant / Project Manager / Engineer	Before construction and before layout changes	ECO	Prior to commencement; per proposed change	Approved layout; constraints plan; drawing register; change-screening records
Wetlands and drainage features	Avoid direct impacts to wetlands and maintain hydrological and ecological functioning.	• Adhere to the scientific buffer areas: 20 m around wetlands and 15 m around non-perennial drainage lines. These must be visibly demarcated to avoid encroachment. • Keep construction camps, stockpiles, fuels, chemicals, sanitation facilities, concrete mixing, refuelling and servicing outside wetlands, drainage features and their scientific buffers. • Restrict vehicle and machinery movement to designated access routes and work areas and use existing routes before new roads are considered. • Address erosion, sedimentation or unauthorised encroachment immediately and rehabilitate affected areas.	Contractor / Project Team	Before and during construction	ECO / Aquatic Specialist where required	Weekly and after significant rainfall	Buffer demarcation; inspection records; photographs; incident and rehabilitation records
Soils and topsoil	Protect soil resources and retain rehabilitation potential.	• Limit soil disturbance and avoid unnecessary stripping, excavation, grading and compaction of soils. • Strip, handle and stockpile topsoil separately from subsoil and construction material where soil disturbance is unavoidable. • Locate stockpiles on stable ground outside watercourses, wetlands and their scientific buffers and protect topsoil, sand, aggregate and building-material stockpiles against erosion, rain-wash, sediment loss and contamination. • Replace available topsoil during progressive rehabilitation and stabilise exposed soils promptly.	Contractor	Clearing, earthworks and rehabilitation	ECO	Weekly and after significant rainfall	Topsoil records; stockpile inspections; photographs; rehabilitation records
Soil compaction	Minimise loss of infiltration, soil function and rehabilitation potential.	• Restrict vehicles and heavy machinery to designated roads, approved work areas and the authorised development footprint. • Minimise repeated trafficking, turning and parking on undisturbed soils. • Lightly rip or till compacted soils in disturbed areas to restore infiltration and promote revegetation. • Do not locate sanitation systems in responsive saturated soils associated with valley bottoms or water channels.	Contractor	Construction and rehabilitation	ECO	Weekly; rehabilitation sign-off	Inspection records; photographs; rehabilitation records
Stormwater and erosion control	Prevent erosion, sediment loss, concentrated runoff and downstream sedimentation.	• Implement the Stormwater Management Plan across the site and along road margins. • Use appropriate erosion and sediment controls such as berms, silt fences, sediment traps, mulch, geotextiles or temporary cover where necessary. • Prevent uncontrolled or concentrated runoff from buildings, roads, parking areas, exposed soils and hardened surfaces. • Use infiltration basins or trenches where necessary to minimise surface overflow and promote re-infiltration. • Establish vegetated buffer strips and grassed waterways where appropriate, preserve natural drainage functions and attenuate differences between pre- and post-development flows. • Inspect after significant rainfall and address signs of erosion as they occur.	Contractor / Engineer	Before and during earthworks	ECO	Weekly and after significant rainfall	Stormwater-control inspections; erosion register; photographs; corrective action records
Hydropedological	Maintain infiltration,	• Minimise compaction and maintain vegetative cover to support infiltration	Engineer /	Detailed design and	ECO /	Design verification;	Approved drainage

Aspect	Management Objective	Management / Mitigation Actions	Responsible Person	Timing	Monitoring Responsibility	Frequency	Evidence of Compliance
functioning	recharge, lateral soil-water flow and natural drainage.	and subsurface flow. • Preserve the natural and beneficial functions of the downstream drainage system and avoid barriers to lateral soil-water movement. • Divert stormwater and surface runoff from buildings, roads and parking areas through green engineering dissipation infrastructure wherever possible. • Do not dispose of untreated wastewater into the catchment system or surrounding areas. • Apply the 20 m wetland scientific buffer and 15 m non-perennial drainage line scientific buffer identified by the wetland specialist.	Contractor	construction	Hydropedologist as required	monthly; where unexpected conditions occur	design; specialist review; inspection records
Vegetation and habitat clearing	Minimise habitat loss and disturbance of higher-value ecological areas.	• Avoid blanket clearing where possible and use selective clearing to retain vegetation and reduce erosion. • Maintain indigenous vegetation under the solar panels to support biodiversity and reduce soil erosion, subject to safety and operational requirements. • Prioritise disturbance in Very Low and Low SEI areas. Medium SEI areas may only be considered where development within Very Low and Low SEI areas is not feasible. • Revegetate denuded areas with indigenous vegetation as soon as practicable after the relevant construction activity is complete. • No vegetation clearing is permitted outside the authorised development footprint.	Project Team / Contractor	Design, clearing and construction	ECO	Daily during clearing; weekly thereafter	Approved layout; clearing records; photographs; inspection records
Pre-construction ecological walkdown	Identify protected plants, Species of conservation concern (SCC) and sensitive ecological features before disturbance.	• A suitably qualified ecologist must undertake a pre-construction ecological walkdown of the approved development footprint within the appropriate flowering and rainfall season before vegetation clearing or site establishment. • The walkdown must identify provincially or nationally protected plants, SCC and active nests, burrows or dens. • Where protected plants, SCC, active nests, burrows or dens are identified, applicable permits, scientific buffers and specialist requirements must be implemented before construction proceeds. • Protected plants remaining in-situ must be clearly demarcated and included in environmental awareness training.	Ecologist / Project Team	Before vegetation clearing	ECO	Once-off before clearing; repeated where layout changes affect new areas	Walkdown report; permits; demarcation records; updated constraints plan
Fauna protection	Minimise fauna displacement, injury, mortality and entrapment.	• Before vegetation clearing, the area to be cleared must be walked on foot by the ECO or appointed environmental representative and another individual to allow fauna to move off before clearing. • Safely relocate tortoises and other fauna threatened by construction to suitable habitat within the property/PAOI using an appropriately qualified ECO or specialist. • Construction should take place during the dry season (May to July) as far as feasible. Where wet season construction is necessary, restrict construction to daylight hours. • Conduct excavations progressively; cover open excavations overnight or provide escape ramps and inspect excavations before backfilling. • Focus work on one area at a time and minimise the time between clearing and development to reduce wildlife return and displacement impacts. • Prohibit hunting, trapping, collection, feeding or deliberate harm of indigenous fauna. • Where perimeter fencing is installed, use wildlife-permeable fencing such as ClearVu or similar, with visibility markers to reduce collision risk. Incorporate 20 cm by 20 cm openings at the bottom of the fence to facilitate movement of ground-dwelling fauna; these openings must not be placed adjacent to major roads where they could increase roadkill risk.	Contractor / ECO	Construction	ECO	Daily during active clearing and excavation	Wildlife incident register; relocation records; inspection records
Roads and internal vehicle movement	Reduce fauna mortality, dust, collision risk and unnecessary disturbance.	• Use designated access routes and internal roads only. • Enforce a maximum construction speed of 40 km/h during daytime and 20 km/h on access roads at night. • Install appropriate speed control measures and signage and include speed limit requirements in induction. • Design roads and road edges, where practicable, to facilitate faunal movement and minimise roadkill risk.	Contractor	Construction	ECO	Weekly; continuous enforcement by Contractor	Speed signage; inspection records; wildlife and vehicle incident records

Aspect	Management Objective	Management / Mitigation Actions	Responsible Person	Timing	Monitoring Responsibility	Frequency	Evidence of Compliance
Avifauna pre-clearance walkdown	Protect active nests, roosts and breeding birds.	• Undertake a pre-clearance avifauna walkdown before vegetation clearance to identify active nests, roosts or breeding activity within the development footprint and immediately adjacent areas. • Treat active nests or breeding areas as temporary no-go areas and consult an avifauna specialist to determine the appropriate buffer, timing restriction or permit requirement. • Where the layout changes, newly affected areas must be reviewed before clearing.	Avifauna Specialist / Project Team	Before clearing and where new areas are opened	ECO	Before relevant clearing activities	Avifauna walkdown report; nest/buffer records; specialist correspondence
Bird-sensitive electrical design and PV reflectivity	Reduce avifaunal collision and electrocution risk.	• Design electrical infrastructure to reduce avifauna collision and electrocution risk, including insulation of exposed live components and use of bird-safe designs. • Install bird diverters on overhead powerline sections as required by the avifauna specialist and the approved design. • Use pile-driven or screw-type solar panel foundations where feasible rather than extensive concrete foundations. • Use solar panels with anti-reflective coating where technically and commercially feasible. Where anti-reflective panels are not used, implement suitable reflection-reduction measures where required.	Engineer / Electrical Contractor	Detailed design and installation	ECO	Design review and installation verification	Approved design drawings; specialist review; installation and commissioning records
Localised blasting	Minimise noise, vibration, flyrock, habitat disturbance and potential injury or mortality of fauna and avifauna associated with localised blasting activities.	• Blasting must be limited to shallow, localised excavations required for cable trenches, foundations and footings, and only undertaken where mechanical excavation or minor realignment is not feasible. • Blasting must be undertaken by suitably qualified and authorised personnel in accordance with an approved blasting procedure and applicable safety requirements. • Inspect each proposed blast footprint for fauna, occupied burrows, active nests and roosts before drilling or charging. All findings must be recorded. • Suspend activities locally where fauna or occupied refuges may be affected and obtain specialist advice regarding avoidance measures or authorised rescue and relocation. Only suitably qualified personnel may handle or relocate animals. • Allow fauna to leave uncharged areas voluntarily through unobstructed escape routes. Animals must not be chased, and occupied burrows must not be sealed. • Restrict blasting to daylight hours and avoid sensitive periods of avifaunal activity where practicable. A mandatory wildlife inspection must form part of the blasting contractor's pre-firing clearance procedure. Blasting must be delayed where animals remain within the designated blast danger area. • Use appropriately designed blast charges, stemming and protective measures, including blast mats where required, to minimise vibration, flyrock, dust and unnecessary disturbance to surrounding habitats. • Implement appropriate sediment, erosion and spoil management measures to prevent blast debris and disturbed material from entering watercourses, wetlands and their associated scientific buffers. • Following the blasting contractor's all-clear, inspect the blast footprint and adjacent habitats for injured or dead fauna, flyrock and unintended habitat damage. All findings and incidents must be recorded. • Where wildlife casualties or habitat damage occur, blasting controls must be reviewed and revised before subsequent blasting. Flyrock debris must be safely retrieved using methods that avoid further habitat disturbance. • Stabilise and rehabilitate areas disturbed by blasting as soon as practicable, including reinstatement of natural drainage patterns, replacement of topsoil and revegetation using locally appropriate indigenous species.	Contractor	Construction	ECO	Before and after each blast; weekly compliance inspections	Approved blasting procedures; pre- and post-blast inspection records; wildlife clearance records; blasting records; incident register; photographic records; rehabilitation inspection records
Construction noise	Minimise disturbance to fauna and surrounding receptors.	• Undertake Project activities with appropriate noise mitigation to avoid unnecessary disturbance to fauna and avifauna. • Limit routine construction to 06:00-18:00 where practicable and avoid dawn and dusk peak avifaunal activity periods for heavy machinery operations. • Schedule particularly noisy activities during the heat of the day where practicable.	Contractor	Construction	ECO	Weekly and complaints-driven	Inspection records; maintenance records; complaints register

Aspect	Management Objective	Management / Mitigation Actions	Responsible Person	Timing	Monitoring Responsibility	Frequency	Evidence of Compliance
		• Use quieter equipment alternatives where available, maintain equipment to minimise mechanical noise and use temporary barriers or screens around high-noise activities where necessary.					
Construction lighting	Minimise disturbance to fauna, avifauna and visual receptors.	• Minimise outside lighting and use only the lighting required for safety and security. • Direct lights downward and away from sensitive habitats, wetlands, watercourses and natural areas. • Use baffles, hoods or louvres and motion-detection lighting where feasible. • Avoid fluorescent and mercury vapour lighting where suitable alternatives such as sodium vapour/yellow lighting are available. • Avoid unnecessary night-time vehicle lighting and illumination.	Contractor	Construction	ECO	Weekly; periodic night-time inspections	Photographs; lighting inspections; complaint records
Alien and invasive plants	Prevent establishment and spread of alien and invasive species.	• Compile and implement the Alien Invasive Plant Management Plan from the onset of construction. • The plan must identify affected areas, appropriate removal methods, follow-up control, monitoring and procedures for updating the plan as new information becomes available. • Monitor and undertake necessary removals at least every three months during construction and once on completion of construction. • Avoid herbicide use in watercourses and their scientific buffers; use mechanical control in these areas. • Revegetate disturbed areas with indigenous species to reduce invasive plant establishment.	Contractor / Project Team	Construction and rehabilitation	ECO	At least quarterly; follow-up as required	Alien control register; treatment records; photographs
Hazardous substances	Prevent soil, surface water and groundwater contamination.	• Store fuels, oils, chemicals, cement, paints and other hazardous substances in designated, bunded and impermeable areas away from watercourses, wetlands and their scientific buffers. • Generator diesel tanks and other hydrocarbon storage must be appropriately contained and labelled. • Maintain Safety Data Sheets and restrict handling to trained personnel. • Do not store hazardous substances in areas where leaks could enter stormwater or sensitive environments.	Contractor	Construction	ECO	Weekly	Storage inspections; bunding records; photographs; maintenance records
Spill prevention and response	Contain and remediate spills promptly and prevent migration to water resources.	• Implement the Project's spill prevention and response procedures for all hydrocarbon and chemical incidents. • Keep complete spill kits available wherever hydrocarbons or chemicals are stored, handled or used. • Use drip trays or oil-absorbent material beneath vehicles, machinery and equipment where there is a risk of leaks or spills. • Repair leaking vehicles or equipment immediately or remove them from the PAOI for repair. • Treat contaminated soil or yard stone in-situ where appropriate or remove it for disposal at an appropriately licensed facility. • Refuelling and servicing must take place in designated areas away from watercourses, wetlands and their scientific buffers.	Contractor	Construction / incident response	ECO	Weekly spill-kit checks; per incident	Spill register; photographs; remediation records; disposal manifests
Concrete, cement and wash water	Prevent alkaline contamination of soil and water.	• Mix cement and concrete only within a designated, lined area away from watercourses, wetlands and their scientific buffers. • Prevent concrete wash water, cement slurry and contaminated runoff from entering soil, stormwater systems or water resources. • Rehabilitate concrete and cement mixing areas following construction.	Contractor	Construction	ECO	Weekly	Designated washout areas; photographs; inspection records; waste records
Sanitation	Prevent sewage leakage, pollution and nuisance conditions.	• Provide adequate sanitation facilities for construction workers and service them regularly to prevent leaks. • Locate sanitation facilities outside watercourses, wetlands, their scientific buffers and responsive saturated soils. • Prevent discharge of untreated wastewater to the catchment system or surrounding areas.	Contractor	Construction	ECO	Weekly	Service records; inspection records; incident records
Waste management	Prevent littering, pollution, wildlife attraction and unlawful disposal.	• Implement the Waste Management Plan and apply the waste hierarchy where practicable. • Provide sufficient designated containers for general, recyclable, hazardous and medical waste and keep domestic waste in covered, animal-proof bins and/or skips. • Remove domestic waste regularly, as a minimum every second week, and	Contractor	Construction	ECO	Weekly; monthly documentation review	Waste register; manifests; recycling records; disposal slips; inspection photographs

Aspect	Management Objective	Management / Mitigation Actions	Responsible Person	Timing	Monitoring Responsibility	Frequency	Evidence of Compliance
		do not permit overspill. • Dispose of general, hazardous and medical waste at appropriately licensed or registered facilities as applicable and retain disposal records. • All personnel are responsible for preventing and collecting litter. Broken PV panels should be collected for recycling where feasible. • Maintain a waste register and safe disposal manifests.					
Water use and conservation	Avoid unnecessary water consumption and uncontrolled discharge.	• Use water efficiently for construction, dust suppression and domestic purposes. • Water may only be obtained from an approved and lawful source. • Repair leaking tanks, pipes, taps and fittings promptly. • Construction water may not be abstracted from wetlands, streams or other natural water resources unless specifically authorised.	Contractor / Project Manager	Construction	ECO	Monthly and during inspections	Water source records; consumption records where available; inspection records
Heritage and palaeontology	Prevent unauthorised disturbance of archaeological, burial or fossil resources.	• Implement the Chance Find Procedure (CFP) and Fossil Find Procedure (FFP) during all ground disturbance activities. • Stop work and secure the immediate area if potential archaeological material, graves, human remains or fossil resources are encountered and obtain the required specialist or authority direction before work resumes.	Contractor / Project Team	All ground-disturbing activities	ECO	Continuous; per chance find	Induction records; chance find register; specialist and authority correspondence
Dust and air quality	Minimise nuisance dust, particulate emissions and vehicle exhaust emissions.	• Implement dust-reducing measures on all roads and bare or unvegetated areas and strictly enforce them. • Reduce dust generated by vehicles and earth-moving machinery through appropriate dust suppression and enforcement of speed limits. • Use only environmentally friendly or biodegradable dust suppressants to avoid pollution of water resources. • Cover or secure dusty loads where necessary and maintain vehicles and equipment in good condition.	Contractor	Construction	ECO	Daily visual checks; complaints-driven	Inspection records; dust control records; complaints register
Traffic and transportation	Manage Project-related traffic safely and minimise disruption to other road users.	• Develop and implement a Traffic Management Plan. • Use approved access routes and comply with Mine traffic rules and public-road requirements. • Coordinate abnormal loads and major deliveries with Mine operations. • Schedule deliveries where practicable to avoid unnecessary congestion and conflict with Mine shift changes or other peak movements. • Maintain vehicle roadworthiness and secure loads. • Record traffic incidents and near misses and implement corrective measures.	Contractor	Construction	Project Manager / ECO	Weekly; per incident	Delivery schedule; vehicle records; incident and near-miss register; inspection records
Fire prevention and response	Minimise risk of construction-related veld or infrastructure fires.	• Smoking is permitted only in designated areas. • Open fires and unauthorised burning are prohibited. • Maintain appropriate firefighting equipment at work areas, workshops, fuel storage areas and vehicles where required. • Keep combustible vegetation and materials away from ignition sources. • Hot-work activities must comply with applicable permit and fire prevention requirements. • Stop work during extreme fire-risk conditions where instructed by Booysendal or responsible safety personnel. • Report and respond to fires immediately in accordance with the emergency response procedure.	Contractor	Construction	ECO	Weekly equipment checks; continuous compliance	Fire-equipment inspections; hot-work permits; incident records
Visual management and housekeeping	Limit temporary visual intrusion and maintain an orderly construction site.	• Locate temporary facilities and laydown areas within approved and preferably disturbed areas (infrastructure hub). • Retain vegetation around the footprint where compatible with technical and safety requirements. • Avoid unnecessary earthworks and visually prominent stockpiles. • Remove litter, packaging, rubble and scrap regularly. • Keep construction areas orderly. • Limit night lighting. • Remove temporary signs, unused equipment and temporary structures when no longer required. • Progressively rehabilitate completed areas rather than deferring all rehabilitation until the end of construction.	Contractor	Construction	ECO	Weekly	Housekeeping inspections; photographs; waste and rehabilitation records
Social / recruitment and procurement	Maximise reasonable local benefits while avoiding	• Use formal and transparent recruitment and procurement channels. • Clearly communicate the temporary nature and expected scale of	Applicant / Contractor /	Before and during construction	Project Manager / Stakeholder /	Monthly and as engagement occurs	Recruitment notices; procurement records;

Aspect	Management Objective	Management / Mitigation Actions	Responsible Person	Timing	Monitoring Responsibility	Frequency	Evidence of Compliance
	unrealistic expectations and social tension.	construction employment. • Where reasonably practicable and consistent with procurement requirements, suitable local labour and businesses should be afforded an opportunity to participate without creating commitments that cannot be fulfilled. • Maintain a grievance mechanism for Project-related concerns.	Stakeholder / Community Liaison Team		Community Liaison Team		stakeholder records; grievance register
Avifauna monitoring and incident response	Detect construction-related displacement, injury or mortality and enable adaptive mitigation.	• Record avifauna injuries, mortalities, nest disturbance or collision incidents and report them to the ECO. • Contact the avifauna specialist where nesting species are found or repeated avifaunal incidents occur. • Conduct annual avifauna surveys, rotating surveys to include different seasons, to track displacement and community changes during the construction period. • Implement additional mitigation where monitoring identifies recurring impacts.	Contractor / ECO / Avifauna Specialist	Throughout construction	ECO / Avifauna Specialist	Ongoing incident recording; annual avifauna survey during construction	Incident register; specialist survey records; corrective actions
Unexpected environmental conditions	Ensure unforeseen sensitivities or impacts are appropriately managed.	• If previously unidentified wetlands, seepage zones, SCC, nests, dens, heritage resources, fossils, significant erosion, contamination or other sensitive features are encountered, stop the affected activity where continued work could result in environmental harm. Secure the area and notify the ECO. • The EAP or relevant specialist must be consulted where the significance or appropriate management response is uncertain. • Work may resume only after appropriate controls have been identified and implemented.	Contractor / Project Team	As encountered	ECO / EAP / Specialist as required	Per occurrence	Incident/observation record; specialist advice; photographs; clearance record
Progressive rehabilitation	Stabilise temporary disturbance and restore soil and vegetation function as soon as practicable.	• Commence rehabilitation promptly once construction activities are complete in temporary disturbance areas. • Remove temporary infrastructure, waste and redundant materials. • Reshape disturbed land to stable contours compatible with surrounding drainage. • Rip or scarify compacted soils where required. • Replace conserved topsoil evenly. • Revegetate using suitable indigenous species, approved seed mixes or assisted natural regeneration. • Stabilise erosion-prone areas using suitable temporary or permanent controls. • Monitor vegetation establishment, erosion, soil stability and alien plants. • Undertake reseeding, erosion repair, alien control or other corrective actions where rehabilitation is not achieving the required outcome.	Contractor / Project Team	Progressively during construction and at construction close out	ECO	Monthly; close out; follow-up until stable	Rehabilitation register; photographs; vegetation and erosion monitoring; close out records

24.14 Operational Phase Environmental Management Programme

Following completion of construction and commissioning, the physical disturbance associated with the Project will decrease substantially. Operational activities will primarily comprise electricity generation, routine inspection and maintenance of the photovoltaic panels and electrical infrastructure, vegetation management, security, panel cleaning, periodic vehicle movements, maintenance of internal roads and stormwater infrastructure, and maintenance of the overhead power line.

Although these activities are less intensive than construction, they will continue over the operational life of the facility and therefore require ongoing environmental management. The objectives of the operational EMPr are to maintain the authorised development footprint, protect remaining ecological and hydrological features, maintain rehabilitation success, prevent pollution, minimise fauna and avifaunal mortality, manage operational nuisance and ensure that environmental incidents or deterioration are identified and corrected promptly. These requirements are consistent with the operational impacts identified in the impact assessment.

Table 24-5: Operational Phase Environmental Management Measures

Aspect	Management Objective	Management / Mitigation Actions	Responsible Person	Timing	Monitoring Responsibility	Frequency	Evidence of Compliance
Authorised operational footprint / no-go areas	Prevent expansion of operational disturbance beyond the authorised footprint.	• Confine all operational activities, maintenance, vehicles, equipment, storage and temporary work areas to the authorised development footprint, approved access roads and established operational areas. • Maintain the demarcation or identification of wetlands, scientific buffers and other no-go areas where operational activities occur nearby. • No new tracks, laydown areas, clearing or infrastructure may be established outside the authorised footprint without prior environmental screening and, where required, approval. • Any unauthorised disturbance must be recorded and rehabilitated.	Operations and Maintenance (O&M) Team	Throughout operation	Environmental Officer (EO)	Monthly	Inspection records; photographs; approved layout; disturbance register
Operational environmental compliance	Maintain compliance with the Environmental Authorisation (EA), EMPr and other applicable approvals.	• Maintain an up-to-date register of the EA, water use approvals, heritage requirements, biodiversity permits and other applicable authorisations. • Track operational conditions, monitoring requirements, reporting obligations and expiry or renewal dates. Incorporate applicable conditions into operational procedures and maintenance instructions. • No activity regulated by a separate approval may be undertaken unless that approval is effective.	Applicant / O&M Team	Throughout operation	EO	Quarterly and before new regulated activities	Legal register; permit register; compliance checklist; authority correspondence
Operational access control and wildlife protection	Prevent unauthorised access, poaching and disturbance to wildlife.	• Maintain access controls and restrict entry to authorised personnel and visitors. • Maintain environmental awareness measures prohibiting hunting, trapping, collection of eggs and deliberate harm to wildlife. • Display and maintain appropriate wildlife protection signage and record incidents and enforcement actions.	O&M Team / Security	Throughout operation	EO	Monthly	Access records; incident register; signage inspections
Rehabilitation maintenance	Maintain stable and successfully rehabilitated areas.	• Inspect all areas rehabilitated following construction. • Repair areas showing erosion, compaction, bare ground, poor vegetation establishment or instability. • Reseed or revegetate where natural recovery is inadequate. • Maintain suitable indigenous vegetation cover compatible with facility operation, electrical safety and fire management requirements. • Prevent operational activities from degrading rehabilitated areas.	O&M Team	Throughout operation	EO	Quarterly for first two years; biannually (twice a year) thereafter or until stable	Rehabilitation monitoring records; photographs; corrective action records
Soils and operational compaction	Prevent unnecessary degradation of soil function.	• Restrict maintenance vehicles and machinery to designated access roads and approved maintenance areas. • Repair rutting, compaction and erosion caused by maintenance activities and loosen compacted soil where necessary to restore infiltration. • Maintain vegetation cover in open areas to reduce erosion, dust generation and soil exposure. • Prevent and immediately remediate soil contamination from fuel, oil, chemicals or maintenance activities.	O&M Team	Throughout operation and maintenance	EO	Quarterly and following major maintenance	Inspection records; rehabilitation records; photographs
Stormwater and erosion	Maintain stable drainage and prevent concentrated runoff, erosion and sedimentation.	• Design, maintain and operate stormwater systems to control runoff from roads and hardened surfaces and preserve natural drainage functions. • Maintain stormwater infrastructure regularly and inspect for signs of erosion and sedimentation. • Use permeable surfaces where possible and promote infiltration under panels using grass cover or other permeable surfaces instead of paving. • Maintain vegetative buffers to slow and filter runoff and implement corrective measures where erosion or sedimentation is observed.	O&M Team	Throughout operation	EO	Monthly during wet season; after significant rainfall; quarterly otherwise	Stormwater inspections; erosion register; photographs; maintenance records

Aspect	Management Objective	Management / Mitigation Actions	Responsible Person	Timing	Monitoring Responsibility	Frequency	Evidence of Compliance
Wetlands, drainage features and scientific buffers	Maintain wetland condition, water quality and hydrological connectivity.	• Maintain the 20 m wetland scientific buffer and 15 m non-perennial drainage line scientific buffer as operational no-go areas except where infrastructure is specifically authorised. • Do not discharge panel cleaning runoff, untreated wastewater, chemicals or contaminated stormwater to wetlands, drainage features or their scientific buffers. • Keep refuelling, machinery maintenance, hazardous substances and waste storage away from watercourses and wetlands. • Inspect scientific buffers after significant rainfall, incidents or maintenance activities and correct erosion, encroachment or pollution promptly.	O&M Team	Throughout operation	EO	Biannually (twice a year) and after significant rainfall or incidents	Wetland/buffer inspection records; photographs; corrective action records
Hydropedological functioning	Maintain infiltration, recharge, lateral flow and hydrological support to downstream features.	• Minimise soil compaction and maintain vegetative cover to support infiltration and subsurface lateral flow. • Maintain infiltration basins, trenches, vegetated buffer strips or grassed waterways where these are required by the stormwater design. • Prevent concentration of runoff and preserve downstream drainage functions and stormwater quality. • Do not dispose of untreated wastewater into the catchment or surrounding areas and do not locate sanitation systems in responsive saturated soils.	O&M Team /	Throughout operation	EO	Biannually (twice a year); following drainage modifications or observed problems	Drainage inspections; specialist review where applicable; corrective action records
Vegetation and habitat management	Maintain ecological function within and adjacent to the operational footprint.	• Maintain indigenous vegetation within open areas and under solar panels as far as practicable. • Revegetate residual bare or disturbed areas with locally appropriate indigenous species. • Avoid unnecessary vegetation clearing during maintenance and restrict all disturbance to the authorised footprint and existing access network.	O&M Team	Throughout operation	EO	Quarterly and during vegetation management activities	Vegetation management records; photographs; inspections
Under-panel vegetation and heat management	Maintain vegetation and soil conditions beneath and around PV panels.	• Maintain indigenous vegetation under and around panels as far as practicable. • Maintain adequate soil moisture retention through indigenous vegetation cover. • Monitor vegetation cover and adjust vegetation management practices where loss of cover, erosion or heat-related degradation is observed.	O&M Team	Throughout operation	EO	Quarterly and during vegetation maintenance	Vegetation inspections; photographs; maintenance records
Alien and invasive plants	Prevent establishment and spread of alien invasive vegetation.	• Conduct regular monitoring for alien and invasive plant species and remove them promptly. • Use mechanical methods in watercourses and scientific buffer areas and avoid herbicides in these sensitive areas. • Maintain indigenous vegetation cover to reduce invasive plant establishment and rehabilitate residual disturbed areas.	O&M Team	Throughout operation	EO	Biannually (twice a year) during the first two years; annually thereafter or more frequently where required	Alien invasive plant register; treatment records; photographs
Fauna protection	Minimise wildlife mortality and operational disturbance.	• Maintain operational speed limits and restrict vehicles to designated roads and maintenance tracks. • Keep noise and lighting to the minimum required for safe operation, particularly from dusk to dawn. • Safely relocate wildlife threatened by maintenance or operational activities using a qualified individual. • Maintain environmental awareness prohibiting hunting, trapping, collection or deliberate harm of fauna. • Where perimeter fencing is installed, use wildlife-permeable fencing such as ClearVu or similar, with visibility markers to reduce collision risk. Incorporate 20 cm by 20 cm openings at the bottom of the fence to facilitate movement of ground-dwelling fauna; these openings must not be placed adjacent to major roads where they could increase roadkill risk.	O&M Team/EO	Throughout operation	EO	Monthly; per incident	Wildlife incident register; relocation records; inspection records
Avifauna – collision and electrocution controls	Minimise bird mortality associated with PV and electrical infrastructure.	• Inspect and maintain insulation, bird-safe electrical designs and bird diverters to ensure they remain effective. • Repair damaged insulation, exposed live components or damaged/missing bird diverters as soon as reasonably practicable. • Maintain diverters along the powerline route in accordance with the approved avifauna mitigation design. • Record avifauna mortalities, injuries and collision or electrocution incidents and report them to the EO.	O&M Team	Throughout operation	EO	Routine infrastructure inspections; specialist review where triggered	Avifauna incident register; maintenance records; photographs; specialist recommendations
Avifauna monitoring	Detect collision,	• Conduct avifauna fatality monitoring quarterly during the first three years	O&M Team /	First three years of	EO / Avifauna	Quarterly during first	Fatality database;

Aspect	Management Objective	Management / Mitigation Actions	Responsible Person	Timing	Monitoring Responsibility	Frequency	Evidence of Compliance
and adaptive management	electrocution and fencing impacts and implement additional mitigation where required.	of operation and maintain a database of mortalities and injuries. • Share the fatality monitoring database with BirdLife Africa in accordance with the specialist recommendation. • Maintain a collision database and review records to identify hotspots requiring additional mitigation. • Consult the avifauna specialist and implement additional mitigation where repeated collisions, electrocutions or mortalities are recorded.	Avifauna Specialist	operation and thereafter as triggered by incidents	Specialist	three years; incident-triggered review thereafter	BirdLife Africa submissions; specialist recommendations; corrective action records
Fencing	Minimise fauna and avifauna collision and movement impacts while maintaining security.	• Maintain ClearVu or similar wildlife-permeable fencing and keep visibility markers effective to reduce collision risk. • Maintain the 20 cm by 20 cm small fauna openings incorporated at the bottom of the fence where these form part of the approved design, except where safety or security requirements dictate otherwise. • Repair damaged or collapsed fencing promptly and review collision records for fencing-related hotspots.	O&M Team	Throughout operation	EO	Quarterly and following incidents	Fence inspections; maintenance records; fauna/avifauna incident register
Panel cleaning	Prevent water quality deterioration and chemical contamination.	• Use only environmentally friendly or biodegradable cleaning products. Harsh chemicals, detergents or substances that may contaminate soil or water resources must be avoided. • Panel cleaning runoff must not be discharged to watercourses, wetlands or their scientific buffers. • Use the minimum quantity of water and cleaning product reasonably required and prevent concentrated runoff or ponding. • Maintain Safety Data Sheets for cleaning products and respond immediately to spills.	O&M Team	During panel cleaning activities	EO	Per cleaning event; quarterly review	Cleaning records; water use records where available; product Safety Data Sheet; inspection records
Water use and conservation	Minimise operational water demand and ensure lawful water use.	• Use water only from lawful and approved sources. • Use the minimum quantity reasonably required for panel cleaning and maintenance. • Monitor water consumption where practicable and repair leaking tanks, pipes, taps and fittings promptly. • Do not discharge untreated wastewater or contaminated cleaning water to the catchment or surrounding areas.	O&M Team	Throughout operation	EO	Monthly or per billing/measurement cycle	Water source records; consumption records; maintenance records
Hazardous substances	Prevent contamination of soil and water during operation and maintenance.	• Store fuels, oils, lubricants, transformer fluids, chemicals and other hazardous materials within designated controlled areas with appropriate secondary containment. • Maintain containers in good condition, clearly labelled and supported by applicable Safety Data Sheets. • Keep spill response material available and use drip trays during maintenance where leaks may occur. • Do not store hazardous substances within wetlands, drainage features or their scientific buffers. • Inspect transformers, inverters and other equipment for leakage and repair defects promptly.	O&M Team	Throughout operation	EO	Monthly and during maintenance	Storage inspections; equipment maintenance records; photographs
Spill and leak response	Contain and remediate operational spills promptly.	• Immediately stop and contain spills where safe to do so. • Prevent migration into stormwater infrastructure, wetlands or drainage features. • Recover spilled product and remove or remediate contaminated soil as appropriate. • Dispose of contaminated materials at an authorised facility where required. • Record material spills, investigate causes and implement preventative action. • Spills affecting or threatening water resources must receive immediate priority and must be reported in accordance with applicable legal and approval requirements.	O&M Team	Per incident	EO	Per incident; monthly spill-kit inspection	Spill register; photographs; remediation records; disposal slips; incident reports
Operational waste	Manage operational, maintenance and electrical waste lawfully.	• Apply the waste hierarchy through prevention, reuse and recycling where practicable. • Segregate general, recyclable and hazardous waste. • Store waste securely and prevent windblown litter or wildlife access. • Do not burn, bury or dump waste on site.	O&M Team	Throughout operation	EO	Monthly	Waste register; manifests; recycling and disposal records

Aspect	Management Objective	Management / Mitigation Actions	Responsible Person	Timing	Monitoring Responsibility	Frequency	Evidence of Compliance
		• Maintain appropriate disposal and recycling documentation. • Regularly remove waste from operational areas and substations.					
Damaged PV panels and electrical equipment	Prevent pollution and maximise lawful recovery of end-of-life components.	• Remove damaged, failed or redundant PV modules, batteries where applicable, cables and electrical components from active areas promptly. • Store damaged panels and components in a secure area protected from breakage and environmental exposure. • Assess suitable components for repair, reuse or recycling before disposal. • Hazardous or contaminated components must be managed according to their classification and disposed of through appropriately authorised facilities. • Maintain records of quantities removed, recycled or disposed of.	O&M Team	As equipment is replaced or damaged	EO	Per occurrence; quarterly records review	Asset disposal register; recycling and waste manifests
Maintenance excavations	Prevent unnecessary soil, biodiversity and heritage impacts during operational maintenance.	• Keep excavations associated with cable, drainage, road or infrastructure repairs to the minimum area required. • Reuse existing disturbed areas and access routes. • Separate topsoil where excavation affects vegetated land and reinstate soils and vegetation after work. • Open excavations must be managed to prevent fauna entrapment. • Apply the Chance Find Procedure (CFP) and Fossil Find Procedure (FFP) to maintenance-related ground disturbance.	O&M Team	During maintenance excavations	EO	Per activity	Maintenance method statement; photographs; rehabilitation and chance find records
Heritage and palaeontology	Protect previously unidentified heritage and palaeontological resources.	• Continue implementation of the CFP and FFP during any operational excavation or ground disturbance. • Stop work and secure the immediate area where a potential heritage resource, grave, human remains or fossil is encountered. • Notify the EO and relevant specialist and obtain appropriate guidance before recommencing work.	O&M Team	During ground-disturbing maintenance	EO	Per activity / chance find	Chance find register; specialist correspondence; clearance records
Air quality and dust	Minimise localised operational dust and vehicle emissions.	• Maintain internal roads in a condition that minimises excessive dust generation. • Enforce operational speed limits. • Apply environmentally appropriate dust suppression where necessary. • Maintain vehicles and equipment in good working condition and avoid unnecessary idling. • Stabilise bare or eroded areas. • Investigate dust complaints and implement corrective measures where Project operations are the confirmed source.	O&M Team	Throughout operation	EO	Monthly; complaints-driven	Road inspections; maintenance records; complaints register
Operational noise	Minimise noise from electrical infrastructure, vehicles and maintenance activities.	• Maintain inverters, transformers and other electrical or mechanical equipment in accordance with manufacturer requirements. • Avoid unnecessary idling, revving and night-time vehicle movements. • Undertake major noisy maintenance during reasonable daytime hours where practicable. • Investigate substantiated noise complaints and implement corrective measures where the Project is the source.	O&M Team	Throughout operation	EO	Monthly; complaints-driven	Maintenance records; inspections; complaints register
Traffic and vehicle movement	Minimise operational traffic disturbance and collision risk.	• Restrict operational and maintenance vehicles to approved access routes and established roads. • Comply with Mine and Project speed restrictions. • Coordinate major maintenance deliveries and abnormal loads with Mine operations. • Avoid unnecessary vehicle movements, particularly at night. • Maintain vehicle roadworthiness and investigate traffic incidents.	O&M Team	Throughout operation	EO	Monthly; per incident	Vehicle and maintenance records; incident register
Lighting	Limit night-time visual and ecological disturbance.	• Keep operational lighting to the minimum required for safety and security. • Shield light sources and direct lighting downward and away from wetlands, natural areas and sensitive receptors using baffles, hoods, louvres or physical barriers. • Limit mounting heights and use the minimum lumen output or wattage required. • Use down-lighters or other fully shielded fixtures and motion-detection lighting where feasible.	O&M Team	Throughout operation	EO	Quarterly; periodic night inspection	Lighting inspections; photographs; complaints register
Visual management and housekeeping	Maintain the facility in an orderly condition and limit long-term visual degradation.	• Maintain PV infrastructure, buildings, fencing and operational areas in good condition. • Remove damaged, redundant or abandoned equipment.	O&M Team	Throughout operation	EO	Quarterly	Housekeeping inspections; photographs;

Aspect	Management Objective	Management / Mitigation Actions	Responsible Person	Timing	Monitoring Responsibility	Frequency	Evidence of Compliance
		• Maintain rehabilitated vegetation and screening vegetation where applicable. • Control erosion and dust on roads. • Prevent accumulation of waste, scrap or unused materials. • Avoid unnecessary vegetation removal and earthworks during maintenance.					maintenance records
Fire prevention and response	Prevent operational fires and minimise consequences where fires occur.	• Maintain fire management and emergency response procedures consistent with Mine and Project requirements. • Maintain appropriate firefighting equipment at substations, operational facilities, vehicles and other relevant locations. • Maintain vegetation around electrical infrastructure to required fire safety standards without unnecessary habitat clearing. • Prohibit uncontrolled fires and manage hot-work through applicable permit procedures. • Maintain emergency access and report and investigate fires and fire-related near misses.	O&M Team	Throughout operation	EO	Monthly equipment checks; before hot-work; per incident	Fire-equipment records; hot-work permits; incident reports
Environmental incidents and emergency response	Ensure rapid response and effective environmental remediation.	• Maintain an operational emergency response procedure covering spills, fires, severe weather, flooding, wildlife incidents, infrastructure failure and other foreseeable environmental emergencies. • Ensure relevant personnel understand reporting, containment, clean-up and escalation requirements. • Record all incidents, corrective actions and close out evidence and notify authorities where required by the applicable approval or law.	O&M Team	Throughout operation	EO	Per incident; procedure reviewed annually	Emergency plan; incident register; investigation and close out records
Socio-economic benefits and expectations	Support reasonable operational benefits while maintaining realistic expectations regarding employment and procurement.	• Use transparent recruitment and procurement processes. • Clearly communicate that operational employment requirements will be substantially lower than during construction. • Where suitably qualified local labour or service providers are available, consider them in accordance with the Project procurement framework and applicable requirements. • Avoid creating unrealistic expectations of employment, procurement or community benefits.	Applicant / Stakeholder / Community Liaison Team	Throughout operation	Stakeholder Manager	Quarterly	Employment/procurement records; stakeholder communications
Stakeholder complaints and grievances	Address Project-related operational concerns transparently and consistently.	• Maintain a mechanism for receiving, recording, investigating and responding to environmental and community complaints. • Record the nature of each complaint, the investigation undertaken, the response provided and corrective action implemented. • Review recurring complaints to determine whether additional mitigation is required and track agreed actions to closure.	Applicant / Stakeholder / Community Liaison Team	Throughout operation	EO	Ongoing; monthly review	Complaints register; correspondence; investigation and close out records
Environmental monitoring and inspections	Identify environmental deterioration or non-compliance before material harm occurs.	• Implement the operational monitoring programme required by the EMPr and specialist recommendations. • Inspect wetlands and scientific buffers, stormwater infrastructure, erosion, rehabilitation, alien plants, waste areas, hazardous substances, avifauna controls, fencing and other relevant environmental controls. • Monitoring must be undertaken by appropriately competent personnel. • Trends indicating deterioration must trigger investigation and corrective action.	EO / O&M Team	Throughout operation	EO	As specified in the EMPr; consolidated review quarterly	Inspection checklists; monitoring reports; photographs
Corrective and adaptive management	Ensure identified environmental problems are effectively resolved.	• Maintain a corrective action register documenting the issue, required action, responsible person, target date and close out evidence. • Prioritise issues presenting immediate risk to water resources, biodiversity or human safety. • Repeated non-compliances or recurring environmental impacts must be investigated to identify root causes. • Where existing mitigation is ineffective, revise management measures.	EO / O&M Team	Throughout operation	Applicant	Quarterly review; immediate action for high-risk issues	Corrective action register; close out photographs; specialist advice
Operational environmental audit	Demonstrate continuing compliance and environmental performance.	• Undertake environmental compliance audits at the frequency required by the EA and applicable legislation. • Complete an annual internal environmental performance review covering inspections, monitoring, incidents, complaints, avifauna fatalities, alien plant control, rehabilitation performance, waste, spills and outstanding corrective actions. • Retain audit and review records and track corrective actions to closure.	EO / O&M Team	Throughout operation	Applicant	Annually internal review; formal reporting as required by approvals	Environmental reports; audit records; EMPr revision register

24.15 Decommissioning, Rehabilitation and Closure Environmental Management Programme

Decommissioning may occur at the end of the useful operational life of the Project, or may be preceded by repowering, refurbishment, partial replacement or continued beneficial use of certain infrastructure, subject to the regulatory, technical and environmental requirements applicable at that time. The preferred end-of-life option must therefore be confirmed before physical decommissioning commences.

Where full or partial decommissioning is undertaken, activities may include electrical isolation and disconnection, dismantling and removal of photovoltaic panels, mounting structures, inverters, transformers, cabling and associated infrastructure; removal or beneficial reuse of roads and buildings where appropriate; waste segregation, recycling and disposal; remediation of contaminated areas; soil reinstatement; erosion control; revegetation; and post-rehabilitation monitoring.

The environmental objective is to leave decommissioned areas in a safe, physically stable, non-polluting and appropriately rehabilitated condition, compatible with the approved post-mining or future land use objective. Disturbance during decommissioning must be restricted to the minimum practicable area and existing roads, laydowns and previously disturbed areas must be reused wherever practicable.

A detailed Decommissioning and Rehabilitation Plan must be prepared before decommissioning commences and must reflect the final infrastructure configuration, environmental condition of the site, applicable legal requirements, specialist recommendations and the intended post-decommissioning land use. The requirements are summarised in **Table 24-6**.

Table 24-6: Decommissioning, Rehabilitation and Closure Measures

Aspect	Management Objective	Management / Mitigation Actions	Responsible Person	Timing	Monitoring Responsibility	Frequency	Evidence of Compliance
End-of-life options assessment	Confirm the most appropriate end-of-life strategy before physical decommissioning.	• Assess reasonable and feasible options including continued operation, repowering, refurbishment, reuse of infrastructure, partial decommissioning and complete removal. • Consider the condition and remaining useful life of infrastructure, future Mine and land use requirements, environmental risks, waste generation implications, recyclability and applicable approvals. • Where infrastructure is proposed to remain in place for beneficial use, confirm the responsible party, future use and maintenance obligations.	Applicant / Operations and Maintenance (O&M) Team	Five years prior to decommissioning decision	Environmental Officer (EO) / O&M Team	Once-off and when strategy changes	End-of-life options assessment; management approval; supporting technical records
Regulatory and approval review	Confirm all legal and approval requirements before decommissioning begins.	• Review the Environmental Authorisation (EA), Environmental Management Programme (EMPr), other approvals and applicable legal requirements prior to decommissioning. Determine whether notification, amendment, surrender, transfer, waste classification, specialist assessment or additional approval is required. • Incorporate all applicable requirements into the Decommissioning and Rehabilitation Plan. • No regulated decommissioning activity may commence before the necessary approvals are effective.	Applicant / O&M Team	Before decommissioning	EO / O&M Team	Once-off; review if regulatory requirements change	Regulatory review; approval register; notifications; authority correspondence
Decommissioning and Rehabilitation Plan	Ensure dismantling and rehabilitation are planned and environmentally controlled.	• Prepare a site-specific plan identifying infrastructure to be retained or removed; work and laydown areas; access routes; dismantling sequence; electrical isolation; waste streams; hazardous substances; soil and topsoil management; erosion and stormwater controls; wetland and biodiversity constraints; rehabilitation methods; fire and emergency arrangements; monitoring requirements; responsibilities; and closure completion criteria. • The plan must be reviewed by the relevant environmental and technical specialists where necessary before implementation.	Applicant / O&M Team	Before site establishment for decommissioning	EO	Once-off; update where scope changes	Approved Decommissioning and Rehabilitation Plan; specialist review records
Pre-decommissioning ecological and avifauna inspection	Identify sensitive ecological features before removal works commence.	• Undertake a pre-decommissioning avifauna inspection before vegetation clearance or infrastructure removal. • If active nests or breeding activity are identified, temporarily avoid the area until the EO or avifauna specialist confirms the appropriate management response. • Conduct pre-decommissioning walk-throughs to identify fauna at risk and implement safe relocation where necessary.	Project Team / EO / Avifauna Specialist	Before relevant decommissioning work	EO	Once-off before works and when new work areas are opened	Inspection records; no-go demarcation; specialist advice
Decommissioning induction and environmental hold points	Prevent dismantling before environmental prerequisites have been completed.	• Provide environmental induction addressing access routes, scientific buffers, waste, spills, fauna, avifauna, heritage chance finds, dust, noise and incident reporting. • Do not commence ground disturbance or infrastructure removal in a new area until no-go areas are demarcated, required inspections are complete and relevant method statements or approvals are in place.	O&M Team / EO	Before decommissioning activities	EO	Per work area / hold point	Induction registers; hold point records; method statements
Work areas, access	Restrict dismantling	• Clearly demarcate decommissioning work areas, access routes, laydown	O&M Team	Before and during	EO	Before	Demarcation records;

Aspect	Management Objective	Management / Mitigation Actions	Responsible Person	Timing	Monitoring Responsibility	Frequency	Evidence of Compliance
and no-go areas	disturbance to approved areas.	areas, stockpile areas, wetlands, non-perennial drainage lines, applicable scientific buffers and other no-go areas before work begins. • Adhere to the 20 m wetland scientific buffer and 15 m non-perennial drainage scientific buffer and visibly demarcate them to prevent encroachment. • Restrict vehicle and machinery movement to designated work areas and access routes and use existing routes before new routes are considered. • Keep dismantled material, waste, stockpiles, hazardous substances and temporary facilities outside watercourses and scientific buffers.		decommissioning		commencement; weekly thereafter	photographs; inspection records
Temporary decommissioning facilities and laydown areas	Minimise temporary footprint and pollution risk.	• Locate temporary offices, laydowns, parking, waste-sorting areas and equipment storage areas within approved and preferably previously disturbed locations. • Keep these facilities outside wetlands, scientific buffers (20 m wetland buffer and 15 m non-perennial drainage buffer) and other sensitive areas. • Establish stormwater controls, sanitation, waste facilities, fire controls and hazardous material containment before use. • Remove and rehabilitate temporary facilities when no longer required.	O&M Team	Decommissioning	EO	Weekly	Site establishment plan; inspections; close out photographs
Electrical isolation and safe dismantling	Prevent pollution, fire, injury and uncontrolled release of electrical or hazardous materials.	• Electrically isolate, disconnect and make safe PV arrays, inverters, transformers, substations, cables and associated equipment before dismantling. • Apply approved lock-out and isolation procedures. • Drain or remove oils and other hazardous fluids before equipment is dismantled or transported where appropriate. • Prevent breakage, uncontrolled discharge or abandonment of electrical equipment. • Manage damaged components according to their waste classification and applicable legal requirements.	O&M Team	Before and during dismantling	Project Team / EO	Per dismantling activity	Isolation certificates; lock-out records; equipment decommissioning records
Infrastructure removal and beneficial reuse	Remove redundant infrastructure while avoiding unnecessary disturbance.	• Remove PV modules, mounting structures, inverters, transformers, cabling, electrical equipment, buildings, security infrastructure and other redundant components unless specifically retained for an approved beneficial future use. • Remove foundations to the depth required to achieve the agreed post-decommissioning land use and allow effective rehabilitation. • Minimise excavation and soil disturbance. • Infrastructure proposed for retention must be safe, stable, lawful and subject to an identified future maintenance responsibility.	O&M Team	Decommissioning	EO / O&M Team	Weekly and at close out	Asset/removal register; photographs; retention approvals; close out inspection
Underground infrastructure and foundations	Ensure remaining subsurface infrastructure does not compromise future land use, drainage or safety.	• Remove underground cables, foundations and buried infrastructure where required by the approved closure strategy. • Backfill excavations with suitable clean material and compact only to the degree necessary for physical stability while retaining rehabilitation potential.	O&M Team	During infrastructure removal	EO	Per area; close out verification	As-built/decommissioned drawings; inspection records; rehabilitation records
PV panels and electrical equipment	Maximise recovery and prevent uncontrolled disposal of end-of-life electrical components.	• Handle PV modules carefully to minimise breakage. • Segregate functioning, damaged and end-of-life modules. • Prioritise reuse, refurbishment and recycling where technically and legally feasible. • Store damaged modules in a secure manner that prevents further breakage or environmental exposure. • Electrical equipment, cables, transformers and other components must be routed to appropriate reuse, recycling, recovery or authorised disposal facilities. • Retain records of material quantities and final destinations.	O&M Team	Decommissioning	EO	Ongoing; monthly records review	Recycling and waste manifests; asset disposal register; weighbridge records
Waste management and recycling	Maximise resource recovery and prevent unlawful waste disposal.	• Implement decommissioning waste management through toolbox talks, inductions, method statements and a designated waste management area. • Segregate general, recyclable, hazardous and medical waste and prevent litter. • Prioritise reuse, refurbishment and recycling of PV modules, metals, cables and other materials where technically and legally feasible. • Remove general and hazardous waste to appropriately licensed or registered facilities as applicable.	O&M Team	Throughout decommissioning	EO	Weekly; monthly documentation review; close out	Waste inventory; manifests; recycling manifests; disposal slips

Aspect	Management Objective	Management / Mitigation Actions	Responsible Person	Timing	Monitoring Responsibility	Frequency	Evidence of Compliance
		• Maintain a waste register and safe disposal manifests.					
Hazardous substances and hazardous waste	Prevent soil and water contamination during dismantling.	• Store fuels, oils and chemicals in designated, bunded and impermeable areas away from sensitive environments. • Maintain spill kits and train relevant personnel in spill response. • Prohibit parking or servicing in or near wetlands and scientific buffer areas. • Immediately treat or remove contaminated soil for disposal at an appropriately licensed facility. • Regularly inspect and maintain machinery to prevent leaks.	O&M Team	Decommissioning	EO	Weekly; per removal event	Hazardous material register; Safety Data Sheets; disposal manifests
Spill prevention and response	Prevent and rapidly remediate contamination.	• Maintain spill kits and appropriate absorbent material at dismantling, fuel storage, equipment-service and hazardous material areas. • Train relevant personnel in spill response. Immediately stop and contain spills where safe, prevent migration to stormwater systems or water resources, recover free product and remediate affected soil. • Contaminated materials must be appropriately classified, stored and disposed of. • Record and investigate material spills and implement preventative measures.	O&M Team	Throughout decommissioning	EO	Weekly spill-kit checks; per incident	Spill register; photographs; remediation records; disposal manifests
Contaminated soil and pollution remediation	Leave the site in a non-polluting condition.	• Inspect areas beneath transformers, fuel or chemical storage, workshops and other potential contamination sources. • Investigate suspected contamination where necessary. • Contain affected areas and determine an appropriate remediation approach. • Use in-situ treatment where suitable or excavate contaminated soil for treatment or authorised disposal. • Do not mix contaminated soil with clean topsoil or rehabilitation material. • Verify remediation success where material contamination has occurred.	O&M Team	During dismantling and before closure	EO	Per identified area; close out	Contamination assessment; remediation records; laboratory results where required; disposal manifests
Wetlands, drainage features and scientific buffers	Protect water resources and maintain hydrological connectivity during decommissioning.	• Maintain the applicable 20 m wetland scientific buffer and 15 m non-perennial drainage line scientific buffer throughout dismantling and rehabilitation, as identified in the wetland assessment. • Keep decommissioning work, stockpiles, hazardous substances, refuelling and temporary facilities outside watercourses and buffers. • Prevent contaminated runoff, erosion and sediment from entering wetlands and drainage features. • Restore stable drainage and hydrological connectivity where disturbed.	O&M Team	Decommissioning and rehabilitation	EO / Aquatic Specialist where required	Weekly and after significant rainfall	Wetland/buffer inspections; photographs; incident and rehabilitation records
Hydropedological functioning and drainage	Restore natural infiltration and soil-water movement where practicable.	• Minimise compaction and maintain or re-establish vegetative cover to support infiltration. • Preserve natural drainage functions and restore dispersed runoff and lateral soil-water movement where practicable. • Use infiltration basins or trenches where necessary to minimise surface overflow and promote re-infiltration. • Prevent placement and/or disposal of untreated wastewater to the catchment or surrounding areas and keep sanitation systems out of responsive saturated soils.	O&M Team	Rehabilitation	EO / Hydropedologist as required	During rehabilitation; after significant rainfall	Final drainage plan; inspection records; specialist input where required
Soil and topsoil management	Restore soil function and rehabilitation potential.	• Keep clean topsoil, subsoil, spoil and contaminated material separate. • Replace and spread available topsoil over rehabilitated areas where soil stripping or disturbance occurred. • Locate stockpiles outside watercourses and scientific buffers on stable terrain and protect them from rain-wash and sediment loss. • Use clean compatible material where additional fill is required and prevent contamination of rehabilitation soils.	O&M Team	Dismantling and rehabilitation	EO	Weekly during earthworks	Soil management records; photographs; inspection records
Soil decompaction and landform reinstatement	Establish a stable land surface capable of supporting vegetation and future land use.	• Rip, scarify or loosen compacted roads, laydowns and disturbed areas not retained for an approved future use. • Restore infiltration and avoid preferential flow paths or barriers to lateral soil-water movement. • Backfill excavations with suitable clean material and reinstate a stable landform compatible with drainage and rehabilitation objectives.	O&M Team	Rehabilitation	EO	During rehabilitation; close out	Rehabilitation records; record of the final contours; photographs
Erosion and stormwater	Achieve a stable, non-eroding post-decommissioning land	• Retain necessary stormwater controls until the landform is stable and no longer requires them.	O&M Team	Decommissioning, rehabilitation and	EO	Weekly during works; after significant	Erosion register; stormwater

Aspect	Management Objective	Management / Mitigation Actions	Responsible Person	Timing	Monitoring Responsibility	Frequency	Evidence of Compliance
management	surface.	• Stabilise exposed soils promptly using mulch, geotextiles, temporary cover, berms, silt fences, sediment traps or other appropriate measures. • Address signs of erosion as they occur and prevent concentration of runoff. • Schedule earthworks during dry periods where feasible to minimise erosion risk. • Rehabilitate and revegetate disturbed areas as soon as decommissioning activities are complete in each area.		post-rehabilitation		rainfall; during follow-up monitoring	inspections; photographs; corrective action records
Fauna protection	Minimise injury, mortality and entrapment during dismantling.	• Prohibit hunting, trapping, collecting or deliberate harm of indigenous fauna. • Inspect dismantling areas, stockpiles, trenches and excavations for fauna and safely relocate animals at risk using a qualified person. • Cover open excavations overnight or provide escape ramps and inspect them before backfilling. • Minimise unnecessary vegetation clearing and retain indigenous vegetation wherever possible. • Where perimeter fencing is installed, use wildlife-permeable fencing such as ClearVu or similar, with visibility markers to reduce collision risk. Incorporate 20 cm by 20 cm openings at the bottom of the fence to facilitate movement of ground-dwelling fauna; these openings must not be placed adjacent to major roads where they could increase roadkill risk.	O&M Team / EO	Decommissioning	EO	Daily during active excavation/dismantling; per incident	Fauna incident register; relocation records
Vegetation rehabilitation	Re-establish suitable indigenous vegetation and ecological function.	• Promptly rehabilitate disturbed areas after decommissioning work is completed. • Use suitable indigenous species, approved seed mixes or assisted natural regeneration consistent with the intended post-decommissioning land use. • Retain and maintain natural vegetation where possible and prevent unnecessary vegetation removal during decommissioning.	O&M Team m	Rehabilitation and post-rehabilitation	EO / Ecologist where required	Monthly during initial establishment; thereafter seasonally	Rehabilitation records; vegetation-monitoring records; photographs
Alien and invasive plants	Prevent post-disturbance establishment and spread of alien invasive species.	• Implement the Alien Invasive Plant Management Plan throughout dismantling, rehabilitation and post-closure monitoring. • Prioritise disturbed soils, road margins, stockpile areas, wetland scientific buffers and newly rehabilitated areas. • Use mechanical removal in watercourses and scientific buffers and avoid herbicides in these sensitive areas. • Monitor seasonally and remove alien plants before seed production where practicable.	Applicant / O&M Team / EO	Decommissioning and post-rehabilitation	EO	Seasonally and more frequently where infestations occur	Alien control register; treatment records; photographs
Heritage and palaeontology	Protect unexpected heritage and fossil resources during removal works.	• Continue implementation of the Chance Find Procedure (CFP) and Fossil Find Procedure (FFP) during excavation, foundation removal, trenching and rehabilitation. • Include heritage awareness in decommissioning induction. • If potential archaeological material, graves, human remains or fossils are encountered, stop work in the immediate area, secure the find and notify the EO, appropriate specialist and competent heritage authority where required. • Work may only resume once appropriate clearance is provided.	O&M Team	All ground-disturbing decommissioning activities	EO	Continuous; per chance find	Induction records; chance find register; specialist/authority correspondence
Air quality and dust	Minimise nuisance dust and emissions during dismantling and rehabilitation.	• Apply appropriate dust suppression to exposed areas, haul roads, excavation areas and stockpiles where visible dust is generated. • Enforce speed limits and cover or secure dusty loads. • Minimise unnecessary soil exposure. • Maintain vehicles and plant in good working condition and prohibit unnecessary engine idling. • Investigate substantiated dust complaints and increase controls where necessary.	O&M Team	Decommissioning and rehabilitation	EO	Daily visual checks; complaints-driven	Inspection records; dust control records; complaints register
Noise	Limit temporary noise disturbance during dismantling.	• Maintain machinery and vehicles in good condition. • Avoid unnecessary idling, revving and use of audible alarms except where required for safety. • Undertake high-noise dismantling activities during reasonable daytime hours where practicable. • Avoid unnecessary night work. • Position stationary noisy equipment away from sensitive receptors where feasible.	O&M Team	Decommissioning	EO	Weekly; complaints-driven	Inspection records; equipment maintenance records; complaints register

Aspect	Management Objective	Management / Mitigation Actions	Responsible Person	Timing	Monitoring Responsibility	Frequency	Evidence of Compliance
		• Investigate noise complaints and implement additional controls where Project activities are confirmed as the source.					
Traffic and transportation	Manage heavy-vehicle movements safely and minimise disruption.	• Use designated access routes and work areas and ensure drivers are informed of the routes during induction. • Coordinate dismantling, recycling and waste transport movements with Mine operations. • Ensure vehicles are roadworthy and loads are appropriately secured and covered where necessary. • Implement dust suppression and applicable speed controls.	O&M Team	Decommissioning	O&M Team / EO	Weekly; per incident	Transport schedule; inspection records; vehicle and incident records
Visual management and housekeeping	Minimise temporary visual effects and leave the site free of redundant material.	• Maintain orderly dismantling, material-sorting and waste areas and remove redundant material progressively. • Apply dust suppression as and when necessary. • Retain natural vegetation where possible and avoid unnecessary vegetation clearing. • Rehabilitate disturbed areas immediately after decommissioning work is completed. • Limit decommissioning activities to daylight hours where feasible to reduce lighting impacts.	O&M Team	Decommissioning and rehabilitation	EO	Weekly and at close out	Housekeeping inspections; photographs; close out record
Fire prevention and emergency response	Prevent fires and ensure effective response throughout decommissioning.	• Maintain emergency procedures, firefighting equipment, spill response material, emergency contacts and access routes throughout dismantling and rehabilitation. • Prohibit uncontrolled open fires. • Restrict smoking to designated areas. • Manage cutting, welding and other hot-work through applicable permit procedures and maintain suitable fire-control equipment at hot-work locations. • Electrical isolation and lock-out procedures must be implemented before dismantling live or previously energised infrastructure. • Report and investigate fires and near misses.	O&M Team	Decommissioning	EO	Weekly; before high-risk work; per incident	Fire-equipment inspections; hot-work permits; isolation records; incident reports
Social, recruitment and procurement	Manage temporary decommissioning opportunities and stakeholder expectations transparently.	• Where reasonably practicable and consistent with procurement requirements, utilise suitable local service providers for dismantling, transport, recycling and rehabilitation. • Maintain grievance mechanisms and communicate relevant decommissioning timing and activities to affected stakeholders.	Applicant / O&M Team / Stakeholder / Community Liaison Team	Before and during decommissioning	O&M Team / Stakeholder / Community Liaison Team	Monthly and as engagement occurs	Recruitment/procurement records; notices; stakeholder engagement records; grievance register
Employment transition	Manage the transition from operation to decommissioning responsibly.	• Communicate expected operational closure and workforce changes sufficiently in advance where practicable. • Distinguish between permanent, temporary and Contractor employment implications. • Coordinate employment transition communication with Booysendal's human-resource procedures. • Avoid creating expectations of continued employment beyond available decommissioning or rehabilitation work.	Applicant	Prior to and during decommissioning	Applicant	As required by transition programme	Workforce communications; meeting records; transition plans
Post-rehabilitation monitoring	Verify that rehabilitation is stable and achieving the intended environmental outcomes.	• Monitor rehabilitated areas for vegetation establishment, erosion, soil stability, compaction, drainage performance, wetland and scientific buffer condition, alien invasive plants, residual contamination and avifauna-related incidents. • Compare performance against rehabilitation objectives and implement corrective action where outcomes are not being achieved. • Continue monitoring until the responsible environmental representative confirms that rehabilitation is stable and the applicable closure criteria are achieved.	Applicant / EO	Post-rehabilitation	EO / Relevant Specialist where required	Quarterly during the first year; thereafter at least annually or at a frequency justified by performance until sign-off	Monitoring reports; photographs; corrective action register
Corrective and adaptive management	Resolve rehabilitation failures and unforeseen post-decommissioning impacts.	• Maintain a corrective action register identifying the environmental issue, required remedial action, responsible person, target date and evidence of close out. • Repeated rehabilitation failure or unforeseen impacts must trigger investigation of the underlying cause. • Obtain specialist input where the existing rehabilitation method is ineffective or where wetland, biodiversity, contamination or drainage concerns persist.	Applicant / EO / O&M Team	Decommissioning and post-rehabilitation	EO / O&M Team	Monthly during works; per monitoring event thereafter	Corrective action register; specialist recommendations; close out evidence

Aspect	Management Objective	Management / Mitigation Actions	Responsible Person	Timing	Monitoring Responsibility	Frequency	Evidence of Compliance
Closure completion criteria	Demonstrate that decommissioned areas are safe, stable, non-polluting and appropriately rehabilitated.	• Before environmental close out, verify that: o Redundant infrastructure and temporary works have been removed or formally approved for retention. o Waste and hazardous materials have been removed. o Contaminated areas have been remediated. o Disturbed land has been appropriately reshaped and decompacted. o Drainage systems are stable. o Erosion is adequately controlled. o Vegetation is establishing satisfactorily. o Alien invasive plants are under control. o Wetlands and their scientific buffers have not been materially degraded. o All outstanding corrective actions have been closed. • Obtain specialist or authority verification where required by an approval or where technical confirmation is necessary.	Applicant / O&M Team	End of rehabilitation and post-rehabilitation	EO / Relevant Specialist	At initial close out and during follow-up monitoring	Close out audit; photographic record; rehabilitation assessment; specialist/authority confirmation where required
Final environmental close out	Formally document completion of decommissioning and rehabilitation obligations.	• Compile a final environmental close out report summarising infrastructure removed or retained, waste and recycling destinations, contamination remediation, rehabilitation undertaken, monitoring results, outstanding liabilities and compliance with closure criteria. • All material environmental non-compliances must be resolved or subject to an agreed corrective action programme before final close out. • Retain relevant records for the period required by applicable approvals and legislation.	Applicant / EO	Following achievement of closure criteria	Applicant / EO where required	Once-off	Final environmental close out report; supporting records; authority correspondence/sign-off where applicable

25 DETERMINATION OF CLOSURE OBJECTIVES

The closure objectives for the Project have been developed to ensure that decommissioning and rehabilitation are undertaken in a manner that minimises residual environmental impacts and establishes a safe, stable and environmentally sustainable post-closure landscape. These objectives are informed by the baseline environmental conditions, the findings of the specialist assessments, the impact management objectives presented in **Table 24-2** and the rehabilitation requirements of the existing BS Mine.

The proposed closure strategy provides for the removal of redundant infrastructure, appropriate management of waste and potentially contaminated materials, rehabilitation of disturbed and compacted areas, restoration of soil and drainage functionality, and re-establishment of suitable indigenous vegetation. Particular attention will be given to the protection of wetlands and drainage features, prevention of erosion and sedimentation, management of alien invasive plants and restoration of ecological functioning. The intended post-closure land use is consistent with the broader rehabilitation objectives of BS Mine, which provide for the rehabilitation of disturbed areas to support natural vegetation (NEG, 2026).

The closure objectives and associated rehabilitation measures are detailed in the Final Rehabilitation, Decommissioning and Mine Closure Plan prepared by Natural Evolution Group (2026). The plan also establishes the anticipated rehabilitation requirements, post-closure monitoring measures and financial liability associated with the Project. These requirements will be reviewed and updated, where necessary, throughout the operational life of the Project to account for changes in infrastructure, environmental conditions and applicable regulatory obligations.

25.1 Volumes and Rate of Water Use Required for the Operation

Water will be required during the construction and operational phases of the Project, primarily for dust suppression, concrete works, general construction activities, routine maintenance and domestic purposes. The estimated construction phase water requirement is approximately 1 790 m^3 over the anticipated 15-month construction period, while operational water demand is estimated at approximately 518 m^3 per annum.

Water requirements will be met through existing BS Mine water supply infrastructure and/or existing authorised sources, subject to the applicable water use authorisations and available allocations. No new water abstraction infrastructure is proposed as part of the development. Water consumption will be managed in accordance with the Mine's approved water management procedures to promote efficient use and prevent unnecessary losses.

The Project will not involve industrial process water use. Wastewater generated from domestic and sanitation facilities will be managed through appropriate containment and disposal arrangements, including conservancy tanks, with wastewater removed by appropriately authorised service providers where applicable. The final wastewater management arrangements will be subject to the applicable water use authorisation requirements.

25.2 Has a Water Use Licence Been Applied for?

The Project triggers water uses in terms of Section 21 of the NWA, associated primarily with the development of infrastructure within watercourses and their regulated areas, as well as potentially applicable wastewater management activities.

A pre-application meeting was held with the LOCMA on 1 September 2026, during which it was confirmed that the applicable water uses would be addressed through a GA process. The application has been registered under reference WU52143.

The water uses identified for the Project include Section 21(c), relating to impeding or diverting the flow of water in a watercourse, and Section 21(i), relating to altering the bed, banks, course or characteristics of a watercourse. These activities may arise from the construction of access roads, cable crossings, overhead power line infrastructure and associated earthworks within watercourses or their regulated areas. Section 21(g), relating to the disposal of waste in a manner that may detrimentally impact a water resource, has also been identified as potentially applicable, subject to confirmation of the final wastewater management arrangements.

The GA application will be supported by the relevant specialist assessments, water use risk assessment, Project layout and associated technical information. The Project will be implemented in accordance with the applicable water use authorisation requirements and any conditions imposed by the responsible authority.

26 FINANCIAL PROVISION

Financial provision for the rehabilitation, decommissioning and closure of the Project has been determined through a project-specific Final Rehabilitation, Decommissioning and Mine Closure Plan, prepared by Natural Evolution Group (2026) (attached as **Appendix J**). The assessment considers the anticipated infrastructure, existing environmental conditions, closure objectives, rehabilitation requirements and associated financial liability.

The Project is located within the existing Booysendal South Mine mining right area. Accordingly, the closure planning and financial provisioning arrangements have been developed with consideration of the Mine's existing rehabilitation and closure obligations, the applicable environmental management requirements and the anticipated post-closure land use. The closure liability assessment has been prepared using the Department of Mineral Resources and Energy's 2005 closure cost guideline methodology, supplemented by project-specific market-related rates where necessary to account for photovoltaic infrastructure (NEG, 2026).

26.1 Determination of the Amount of Financial Provision

26.1.1 Describe the Closure Objectives and the Extent to Which They Have Been Aligned to the Baseline Environment Described Under the Regulation

The overarching closure objective for the Project is to establish a safe, stable and environmentally sustainable post-closure landscape through the removal of infrastructure, rehabilitation of disturbed

areas and restoration of indigenous vegetation. The proposed closure strategy is aligned with the existing BS Mine EMPr, which provides for the rehabilitation of impacted areas to natural vegetation (NEG, 2026).

The Project is situated within the Sekhukhune Montane Grassland vegetation type, in an area that has already been modified by mining activities, vehicle movements and the establishment of alien invasive vegetation, including Black Wattle. The baseline environment is characterised by summer rainfall, dry winters and areas of disturbed or compacted soils. These conditions have informed the proposed rehabilitation approach, particularly the need to restore soil functionality, stabilise disturbed surfaces, re-establish indigenous vegetation and prevent the establishment or spread of alien invasive plants (NEG, 2026).

The closure objectives include the removal of redundant infrastructure, recovery and recycling of suitable materials, rehabilitation of disturbed and compacted areas, restoration of natural drainage and infiltration processes, and establishment of a self-sustaining indigenous vegetation community. Rehabilitation will include soil decompaction, replacement of topsoil, soil amelioration where necessary, erosion control and revegetation using an appropriate indigenous seed mixture. The closure plan provides for rehabilitation monitoring for at least five years, including a dedicated alien invasive plant management programme during the initial two years following (NEG, 2026).

These objectives are considered consistent with the baseline environmental conditions and the broader closure vision of Booysendal South Mine. The intended post-closure land use is the establishment of stable, rehabilitated land supporting indigenous vegetation and ecological recovery, rather than the retention of redundant solar infrastructure.

26.1.2 Confirm Specifically that the Environmental Objectives in Relation to Closure Have Been Consulted with Landowner and Interested and Affected Parties

The Project is located within the existing BS Mine mining right area, held by Booysendal. The closure objectives have been developed with reference to the Mine's existing environmental management and rehabilitation requirements and are consistent with the intended post-closure land use of restoring disturbed areas to natural vegetation (NEG, 2026).

The Final Rehabilitation, Decommissioning and Mine Closure Plan forms part of the environmental assessment documentation for the Project and will be made available to interested and affected parties as part of the public participation process. This provides an opportunity for the landowner, relevant authorities and interested and affected parties to review and comment on the proposed closure objectives, rehabilitation measures and post-closure land use.

Comments received during the public participation process that relate to rehabilitation, decommissioning or closure will be considered and, where relevant, incorporated into the final environmental assessment documentation and associated closure planning requirements. The closure objectives will also remain subject to review throughout the operational life of the Project to ensure continued alignment with applicable environmental obligations and the broader closure

strategy of Booysendal South Mine.

26.1.3 Provide a Rehabilitation Plan that Describes and Shows the Scale and Aerial Extent of the Main Mining Activities, Including the Anticipated Mining Area at the Time of Closure

A project-specific Final Rehabilitation, Decommissioning and Mine Closure Plan has been prepared by Natural Evolution Group (2026) and is included as a supporting document to the Environmental Management Programme. The plan describes the proposed decommissioning activities, rehabilitation methodology, anticipated post-closure land use, environmental risks and financial liability associated with the Project.

The Project comprises an approximately 41 ha solar PV development within the existing Booysendal South Mine mining right area. The development includes PV arrays, mounting structures, electrical infrastructure, substations, internal and access roads, operational buildings, fencing and associated infrastructure. The proposed development layout and the spatial extent used for the closure liability calculation are illustrated in **Figure 3-4**.

The rehabilitation strategy provides for the systematic dismantling and removal of redundant infrastructure, with suitable components prioritised for reuse or recycling. Following infrastructure removal, disturbed and compacted areas will be rehabilitated through mechanical ripping, replacement and contouring of topsoil, soil amelioration where required, erosion control and revegetation using indigenous species. Particular attention will be given to access roads, internal roads, construction areas and other surfaces affected by compaction or vegetation disturbance (NEG, 2026).

The closure liability assessment assumes that approximately 15% of the photovoltaic array footprint will require surface preparation and revegetation, based on the anticipated disturbance and vegetation management practices. This assumption will be reviewed should the final development layout, infrastructure configuration or operational vegetation management practices change. Rehabilitation monitoring will continue for at least five years following closure to evaluate vegetation establishment, soil stability, erosion and alien invasive plant control (NEG, 2026).

As the Project comprises renewable energy infrastructure rather than mineral extraction activities, no additional mining excavation area is associated with the development. The rehabilitation plan therefore addresses the anticipated extent of the solar facility and its associated infrastructure at closure, within the broader BS Mine mining right area.

26.1.4 Explain Why It Can Be Confirmed that the Rehabilitation Plan Is Compatible with the Closure Objectives

The rehabilitation plan is considered compatible with the identified closure objectives as the proposed rehabilitation measures directly address the environmental disturbances anticipated during construction, operation and decommissioning. The rehabilitation approach provides for the removal of redundant infrastructure, restoration of disturbed soils, stabilisation of exposed surfaces, re-establishment of indigenous vegetation and management of residual environmental risks ((NEG,

2026).

The proposed rehabilitation methodology has been informed by the existing environmental conditions, including historical mining-related disturbance, soil compaction, the presence of alien invasive vegetation and the climatic characteristics of the Sekhukhune Montane Grassland. Mechanical soil preparation, topsoil replacement, erosion control and revegetation are intended to restore soil functionality and promote the establishment of vegetation compatible with the surrounding environment. Rehabilitation activities will be scheduled, where practicable, to coincide with favourable seasonal conditions to improve vegetation establishment and reduce erosion risks (NEG, 2026).

The rehabilitation plan further provides for post-closure monitoring and alien invasive plant management, recognising that successful rehabilitation requires continued management following the initial implementation of rehabilitation measures. The proposed monitoring programme will allow rehabilitation performance to be assessed and corrective measures implemented where necessary.

Accordingly, the rehabilitation plan provides a technically achievable approach to meeting the closure objectives and is consistent with the broader rehabilitation requirements of Booysendal South Mine. Successful achievement of the closure objectives will be verified through the implementation of the prescribed rehabilitation measures and post-closure monitoring programme.

26.1.5 Calculate and State the Quantum of the Financial Provision Required to Manage and Rehabilitate the Environment in Accordance with the Applicable Guideline

The financial provision required for the rehabilitation, decommissioning and closure of the Project has been calculated by Natural Evolution Group (2026), using the Department of Mineral Resources and Energy's 2005 Guideline Document for the Evaluation of the Quantum of Closure-Related Financial Provision Provided by a Mine. The calculation applies the relevant closure cost rates, supplemented by project-specific market-related rates where the standard rates do not adequately account for photovoltaic infrastructure and associated rehabilitation requirements.

The calculation considers the removal and disposal or recycling of infrastructure, rehabilitation of disturbed surfaces, soil preparation, revegetation, erosion control and associated closure activities. The estimate is based on the proposed development layout, anticipated rehabilitation requirements and assumptions regarding the extent of surface disturbance. A weighting factor, preliminary and general costs, contingency allowance and Value-Added Tax have been included in the calculation (NEG, 2026).

Table 26-1: Estimated Financial Provision for Rehabilitation, Decommissioning and Closure

Cost Component	Estimated Cost
Direct closure and rehabilitation costs	R4 195 534
Weighting factor	1.1
Subtotal after application of weighting factor	R4 615 087
Preliminary and general costs (12%)	R553 810
Contingency allowance (10%)	R461 509
Total excluding Value-Added Tax	R5 630 407

Cost Component	Estimated Cost
Value-Added Tax (15%)	R844 561
Total Financial Provision (Including Value-Added Tax)	R6 474 968

The total estimated financial provision required for the Project is R 6 474 968 (including Value-Added Tax). This amount represents the estimated financial liability associated with implementing the prescribed decommissioning, rehabilitation and closure measures, based on the current development layout and closure assumptions (NEG, 2026).

The financial provision will be reviewed periodically throughout the life of the Project to account for changes in infrastructure, rehabilitation requirements, closure methodologies, market-related costs and applicable regulatory requirements. Where material changes occur, the closure liability assessment will be updated to ensure that adequate financial provision is maintained.

26.1.6 Confirm that the Financial Provision will be provided as Determined

Booysendal, as the holder of the existing BS Mine mining right, will provide a financial guarantee for the estimated rehabilitation, decommissioning and closure liability associated with the Project. The financial guarantee will cover the calculated amount R 6 474 968 (including Value-Added Tax), as determined in the project-specific Final Rehabilitation, Decommissioning and Mine Closure Plan (Natural Evolution Group, 2026).

The financial guarantee will provide for the implementation of the required rehabilitation, decommissioning and closure measures, including in the event of premature closure. The financial provision will be incorporated into the applicable financial provisioning arrangements for Booysendal South Mine and maintained in accordance with the relevant statutory and regulatory requirements.

The financial provision will be reviewed and updated, where necessary, to reflect changes in the Project infrastructure, rehabilitation obligations, closure costs and applicable regulatory requirements. This will ensure that adequate financial provision remains available to implement the prescribed rehabilitation and closure measures throughout the life of the Project.

27 ENVIRONMENTAL MONITORING PROGRAMME

The Environmental Monitoring Programme establishes the requirements for verifying implementation of the EMPr, evaluating the effectiveness of prescribed mitigation measures, identifying unforeseen environmental impacts and ensuring that corrective actions are implemented where necessary. Monitoring will be undertaken throughout the construction, operational, maintenance, decommissioning and rehabilitation phases of the Project, with the scope and frequency determined by the nature of the activities, associated environmental risks, specialist recommendations and applicable EA.

The Environmental Monitoring Programme will address, as applicable, the authorised development footprint, no-go areas, wetlands and associated scientific buffers, drainage features, soil stability and erosion, stormwater management, rehabilitation, alien invasive plants, waste and hazardous substances, fauna and avifauna, heritage and palaeontological resources, surface water,

groundwater, dust, noise, traffic, environmental incidents and stakeholder complaints.

27.1 Monitoring Methods and Performance Indicators

Environmental monitoring will comprise a combination of routine visual inspections, photographic records, environmental checklists, review of operational and waste management records, quantitative monitoring, specialist investigations and environmental compliance audits. Monitoring methods must be appropriate to the environmental aspect being assessed, repeatable and sufficiently documented to identify changes in environmental conditions and determine whether the prescribed mitigation measures are effective.

Table 27-1: Environmental Monitoring Methods and Performance Indicators

Environmental Aspect	Monitoring Method	Performance Indicator
Development footprint and no-go areas	Visual inspections, demarcation checks and photographic records	No unauthorised disturbance outside approved development areas
Wetlands and drainage features	Inspections of buffers, drainage pathways, sedimentation and erosion	No unauthorised disturbance of wetlands, drainage features or associated buffers
Stormwater management	Inspection of channels, culverts, diversion structures and erosion controls	Functional stormwater infrastructure and no uncontrolled contaminated runoff
Soil and erosion	Visual inspections and photographic monitoring	No significant uncontrolled erosion, sedimentation or soil instability
Rehabilitation	Vegetation establishment, soil stability and erosion inspections	Progressive establishment of stable, suitably vegetated areas
Alien invasive plants	Site inspections and vegetation surveys	Effective control of alien invasive species
Waste and hazardous substances	Inspections of storage areas, disposal records and spill-control equipment	Appropriate storage, handling and disposal; no uncontrolled releases
Surface water and groundwater	Review of existing Mine monitoring results and targeted monitoring, where required	No material Project-related deterioration in water quality or adverse effects on water resources
Fauna and avifauna	Incident registers, infrastructure inspections and specialist monitoring where required	Effective implementation of fauna and bird-protection measures
Dust and air quality	Visual inspections, complaints review and dust monitoring where applicable	No persistent uncontrolled dust emissions or substantiated unresolved complaints
Noise and traffic	Visual inspections, complaints review and targeted assessments where required	Effective implementation of noise and traffic mitigation measures
Heritage and palaeontology	Inspections and implementation of Chance Find Procedure and Fossil Find Procedure	No unauthorised disturbance or loss of identified heritage resources
Environmental compliance	Environmental inspections, audits and corrective action registers	Timely identification, implementation and close out of corrective actions

Environmental performance will be considered acceptable where the applicable impact management outcomes are being achieved, EA conditions are satisfied and monitoring does not identify material or recurring adverse environmental trends.

27.2 Surface Water and Groundwater Monitoring

Surface water and groundwater monitoring associated with the Project will be integrated, where applicable, with the existing BS Mine water monitoring programme, undertaken in accordance with Water Use Licence No. 06/B41G/ABCFGIJ/15901, issued by the DWS on 10 April 2025.

The WUL prescribes monitoring requirements for surface water, groundwater and water-related

infrastructure, including designated monitoring locations, monitoring parameters, sampling frequencies, analytical methods and reporting obligations. These requirements are addressed in Appendix I (General Provisions and Conditions), Appendix II (Taking Water from a Water Resource), Appendix IV (Watercourse-Related Activities) and Appendix VI (Disposal of Waste) of the WUL. The detailed monitoring points, analytical parameters and frequencies are provided in Tables 12 to 15 of Appendix VI.

Monitoring results will be reviewed to identify potential changes in water quality or groundwater conditions that may be associated with the Project. Particular attention will be given to potential impacts arising from vegetation clearing, earthworks, stormwater runoff, erosion, sedimentation and the storage or handling of hazardous substances. Where monitoring identifies material deterioration or an unforeseen impact, the potential contribution of the Project will be investigated and appropriate corrective measures implemented.

Additional inspections or targeted monitoring may be undertaken following significant rainfall events, spills, uncontrolled runoff or other incidents that could affect water resources. Any amendments to the approved WUL monitoring programme must be undertaken in accordance with the applicable licence conditions and approval requirements.

Table 27-2: Summary of Water-Related Monitoring and Compliance Requirements in Accordance with the Booysendal South Water Use Licence

Monitoring Activity	Monitoring Frequency or Requirement
Surface water quality	In accordance with Appendix VI of the Booysendal South Water Use Licence (WUL), particularly Tables 13 and 15.
Groundwater quality and levels	In accordance with Appendices II and VI of the WUL, particularly Tables 12 and 14.
Water use measurement	In accordance with Appendix I, Conditions 2.32–2.35.
Watercourse-related monitoring	In accordance with Appendix IV of the WUL, where applicable.
Water-related incidents	In accordance with Appendix I, Conditions 2.13–2.16.
WUL compliance auditing	In accordance with Appendix I, Conditions 2.39–2.40.

27.3 Dust and Air Quality Monitoring

Dust and air quality monitoring will be undertaken to assess the effectiveness of mitigation measures implemented to control dust emissions associated with the Project. Dust-generating activities are anticipated primarily during construction and decommissioning, particularly vegetation clearing, earthworks, excavation, vehicle movements, material handling and the rehabilitation of disturbed areas. During operation, potential dust emissions will be associated with vehicle movements along access roads and maintenance activities.

Dust monitoring will be integrated with the existing BS Mine air quality monitoring programme, where applicable and where the existing monitoring locations are representative of the Project and surrounding receptors. Monitoring will be undertaken in accordance with the applicable requirements of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004), and the National Dust Control Regulations, 2026. Where dustfall monitoring is required, monitoring methods, locations, frequencies and applicable standards must comply with the relevant regulatory

requirements.

Routine visual inspections will be undertaken during dust-generating activities to identify excessive dust emissions from roads, exposed soils, stockpiles and construction areas. Monitoring will consider prevailing weather conditions, particularly wind speed and direction, together with the nature and intensity of the activities being undertaken. Where persistent dust emissions, adverse monitoring trends or substantiated complaints indicate that existing mitigation measures are ineffective, additional dust suppression, targeted monitoring or other appropriate corrective measures will be implemented.

Table 27-3: Dust and Air Quality Monitoring Requirements

Monitoring Activity	Monitoring Method	Monitoring Frequency
Visible dust emissions	Visual inspections of active work areas, access roads, exposed soils and stockpiles	Daily during dust-generating construction and decommissioning activities
Dust suppression measures	Inspection of dust suppression practices and effectiveness	During relevant dust-generating activities
Dustfall monitoring	Existing Booysendal South Mine monitoring programme or additional monitoring, where required	In accordance with applicable regulatory requirements and the Mine monitoring programme
Dust complaints	Review of complaints and investigation of potential sources	As complaints arise
Operational dust	Inspection of access roads and maintenance activities	During routine operational inspections

Monitoring results and observations will be reviewed to determine whether additional mitigation is necessary. Where dust emissions are attributable to the Project, corrective measures will be implemented and their effectiveness verified through follow-up inspections or monitoring.

27.4 Specialist and Aspect-Specific Monitoring

Specialist and aspect-specific monitoring will be undertaken in accordance with the recommendations of the relevant specialist assessments, the conditions of the EA and the mitigation measures prescribed in the EMPr. Monitoring will focus on environmental aspects identified as potentially sensitive to the Project, including terrestrial biodiversity, wetlands, drainage features, soils, hydropedological processes, avifauna, rehabilitation and heritage resources.

Routine environmental inspections will provide the primary mechanism for identifying emerging environmental concerns. Additional specialist monitoring or assessment may be undertaken where required by an environmental authorisation, specialist recommendation, material environmental incident or adverse monitoring trend.

Table 27-4: Specialist and Aspect-Specific Monitoring Requirements

Environmental Aspect	Monitoring Requirements	Monitoring Frequency
Terrestrial biodiversity	Inspect vegetation clearing, habitat disturbance, protected vegetation and compliance with the approved development footprint	During construction and decommissioning inspections
Alien invasive plants	Inspect disturbed areas for alien invasive plant establishment and assess the effectiveness of control measures	At least quarterly during construction and following completion of construction
Avifauna	Record bird injuries and mortalities, inspect	Quarterly during the first three years

Environmental Aspect	Monitoring Requirements	Monitoring Frequency
	potentially hazardous infrastructure and maintain an avifauna incident database	of operation, in accordance with specialist recommendations
Wetlands and drainage features	Inspect scientific buffers, drainage pathways, sedimentation, erosion and potential disturbance	During routine inspections and following significant rainfall events
Stormwater management	Inspect drainage channels, culverts, diversion structures and erosion protection measures	During routine inspections and following significant rainfall events
Soils and erosion	Inspect exposed soils, stockpiles, erosion features and soil stabilisation measures	During construction, decommissioning and rehabilitation inspections
Rehabilitation	Assess vegetation establishment, soil stability, erosion, compaction and alien invasive plant occurrence	Periodically during rehabilitation and until the relevant rehabilitation outcomes are achieved
Fauna	Record wildlife injuries, mortalities and incidents associated with vehicles or infrastructure	During routine inspections and following reported incidents
Heritage and palaeontology	Verify implementation of Chance Find and Fossil Find Procedures and protection of identified heritage resources	During ground-disturbing activities, where applicable
Noise and traffic	Review complaints and inspect implementation of prescribed mitigation measures	During relevant activities and following complaints

Where monitoring identifies an unforeseen impact or indicates that existing mitigation measures may be ineffective, the need for additional specialist input will be evaluated. Any further investigations or monitoring will be proportionate to the nature and significance of the identified environmental risk.

27.5 Monitoring Frequency

Environmental monitoring will be undertaken at the frequencies specified in the applicable environmental management tables, specialist reports, EA and other relevant environmental approvals. The monitoring frequency will be appropriate to the Project phase, environmental sensitivity and nature of the activities being undertaken.

Table 27-5: Summary of Environmental Monitoring Frequencies

Monitoring Activity	Monitoring Frequency
Construction environmental inspections	Daily contractor self-inspections, supported by periodic environmental compliance inspections
Operational environmental inspections	At intervals appropriate to the environmental risks and Environmental Management Programme requirements
Decommissioning environmental inspections	During active decommissioning activities
Surface water and groundwater monitoring	In accordance with the existing Booysendal South Mine Water Use Licence and approved monitoring programme
Dust and air quality monitoring	In accordance with the applicable regulations and Mine monitoring programme, supplemented by visual inspections
Alien invasive plant monitoring	At least quarterly during construction and following completion of construction
Avifauna fatality monitoring	Quarterly during the first three years of operation, subject to specialist recommendations
Wetland, drainage and stormwater inspections	During routine inspections and following significant rainfall events
Rehabilitation monitoring	Periodically during rehabilitation and until applicable rehabilitation outcomes are achieved
Environmental incident monitoring	Following environmental incidents or identified adverse trends

Monitoring Activity	Monitoring Frequency
Environmental compliance auditing	In accordance with the Environmental Authorisation, General Authorisation and applicable legal requirements

In addition to scheduled monitoring, environmental inspections or targeted monitoring will be undertaken following significant rainfall or flooding, material spills, environmental incidents, the opening of new work areas, material changes to the Project layout or activities, substantiated complaints, or the identification of deteriorating environmental trends. Monitoring frequency may be increased where environmental risks, repeated incidents or monitoring results indicate that the existing monitoring arrangements are insufficient.

27.6 Responsibility for Monitoring

Booysendal will retain overall responsibility for ensuring that the Environmental Monitoring Programme is implemented and that the Project complies with the EA, EMPr and other applicable environmental requirements. Monitoring responsibilities will be assigned to the relevant contractors, operational personnel, ECO, EO or appropriately qualified specialists, depending on the nature of the activity and the applicable monitoring requirements.

During construction, the appointed Contractor will be responsible for implementing environmental controls, undertaking routine self-inspections and reporting environmental incidents and non-conformances. The ECO or EO will undertake or coordinate environmental compliance inspections, review monitoring records and verify the implementation of corrective actions. During operation, the Operations and Maintenance Team will be responsible for routine environmental inspections and the implementation of operational environmental management measures, supported by the ECO or EO where required.

During decommissioning and rehabilitation, the appointed Contractor will be responsible for implementing and inspecting environmental controls, while the ECO or EO will oversee compliance monitoring and rehabilitation performance. Relevant environmental specialists may be appointed to undertake, review or advise on monitoring activities where required by specialist recommendations, environmental authorisations or identified environmental risks.

Monitoring undertaken in accordance with the existing BS Mine WUL will remain the responsibility of the WUL holder. The Project's environmental management team will coordinate with the Mine's environmental personnel to obtain and review relevant monitoring information and identify potential Project-related impacts.

27.7 Corrective and Adaptive Management

Where environmental monitoring identifies non-compliance, ineffective mitigation, environmental deterioration or an unforeseen impact, appropriate corrective action will be implemented in proportion to the nature and significance of the identified risk. Activities presenting an immediate threat to water resources, biodiversity, heritage resources or human safety must be stopped or appropriate containment measures implemented without delay, where safe to do so.

Environmental non-conformances and incidents will be documented in a corrective action register, including the identified issue, potential or actual environmental consequences, required remedial or preventative measures, responsible person, target completion date and evidence of close out. Corrective actions will be verified through follow-up inspections or monitoring, where appropriate.

Repeated environmental incidents, recurring non-compliance or continued deterioration despite implementation of mitigation measures will trigger an investigation of the underlying causes. Where necessary, management measures will be reviewed, additional mitigation implemented, monitoring frequency increased or specialist advice obtained.

27.8 Monitoring Records and Reporting

Environmental monitoring records will be maintained in an organised, accessible and auditable format throughout the Project lifecycle. Records will include environmental inspection checklists, photographic evidence, monitoring results, laboratory reports where applicable, incident and complaints registers, waste disposal records, corrective action registers, rehabilitation monitoring records, avifauna monitoring data, specialist recommendations and relevant correspondence with environmental authorities.

Surface water and groundwater monitoring records will be maintained in accordance with the requirements of the existing BS Mine WUL and approved monitoring programme. The Project's environmental management team will review relevant monitoring information, where available, to identify potential Project-related impacts and determine whether additional mitigation or targeted monitoring is necessary.

Monitoring results will be reviewed periodically to identify recurring environmental concerns, evaluate the effectiveness of prescribed mitigation measures and determine whether corrective or preventative actions are required. Material non-conformances, environmental incidents, complaints and outstanding corrective actions will be communicated to Booysendal and relevant responsible personnel.

Environmental compliance monitoring, auditing and reporting will be undertaken in accordance with the EA, EMPr and applicable legal requirements. The requirements for environmental inspections, compliance auditing, reporting and record management are addressed further in the following section of the EMPr.

All environmental monitoring records will be retained and made available for inspection by the competent authority or other authorised representatives, as required by applicable legislation and environmental approvals.

28 COMPLIANCE MONITORING, AUDITING AND REPORTING

28.1 Environmental Inspections

Routine environmental inspections must be undertaken throughout construction, operation and decommissioning at the frequencies specified in this EMPr. Inspections must focus on active work

areas and higher-risk controls, including wetlands and scientific buffers (20 m wetland buffers and 15 m non-perennial drainage line buffers), erosion and stormwater, hazardous substances, waste, vegetation clearing, fauna and avifauna controls, rehabilitation and no-go-area demarcation.

28.2 Compliance Monitoring

Compliance monitoring must assess implementation against the EA, this EMPr, applicable permits and approvals, approved method statements and relevant specialist requirements.

28.3 Non-conformances and Corrective Actions

Non-conformances must be recorded, assigned to a responsible person and tracked to closure. The record must describe the requirement not met, environmental consequence or risk, immediate containment, corrective action, due date and close out evidence. Repeated or significant non-conformances must be escalated to Booysendal and may require EAP or specialist review.

28.4 Environmental Audit Requirements

Environmental audits must be undertaken in accordance with the EA and applicable legal requirements. Audits must evaluate implementation of the EMPr, the effectiveness of mitigation, compliance with approval conditions, the status of corrective actions and whether amendments to the EMPr are required.

Audit findings must be supported by objective evidence and must distinguish between isolated administrative deficiencies and matters that present a material environmental risk.

28.5 Reporting Requirements

Environmental reporting must be proportionate to the Project phase and applicable approval conditions. At a minimum, routine reports must summarise inspections, material non-conformances, environmental incidents, complaints, monitoring results, corrective actions and outstanding environmental risks.

Incidents or events that require notification to a competent authority must be reported within the timeframes and in the manner required by the applicable approval or legislation.

28.6 Record Management

Environmental records must be controlled, legible, traceable and available for inspection and audit. Current versions of the EMPr, approvals, drawings, plans and method statements must be available to responsible personnel, while superseded versions must be archived to prevent unintended use.

29 EMERGENCY PREPAREDNESS AND ENVIRONMENTAL INCIDENT MANAGEMENT

29.1 Environmental Emergencies

Foreseeable environmental emergencies include significant hydrocarbon or chemical spills, fire, severe erosion or flooding, failure of stormwater controls, uncontrolled contaminated runoff, wildlife injury or mortality, unauthorised disturbance of wetlands or scientific buffers (20 m wetland

buffers and 15 m non-perennial drainage line buffers), and unexpected heritage or fossil discoveries.

Emergency procedures must identify responsibilities, communication routes, containment resources, sensitive receptors and escalation requirements.

29.2 Spill Response

Spill kits must be complete and accessible wherever hydrocarbons or chemicals are stored, handled or used. Relevant personnel must be trained in their use.

Where safe, stop the source, contain the spill and prevent migration into stormwater systems, wetlands, watercourses or scientific buffers (20 m wetland buffers and 15 m non-perennial drainage line buffers). Use drip trays or absorbent material where leakage risk exists. Contaminated soil or yard stone must be treated in-situ where appropriate or removed to an appropriately licensed facility. Leaking equipment must be repaired immediately or removed from the Project site for repair.

29.3 Fire Management

Fire prevention and response measures must be maintained throughout the Project lifecycle. Firefighting equipment must be appropriate to the activity and maintained in accessible locations. Uncontrolled open fires are prohibited and smoking must be restricted to designated areas.

Vegetation management for fire safety must avoid unnecessary habitat disturbance and must not result in uncontrolled clearing within wetlands, scientific buffers (20 m wetland buffers and 15 m non-perennial drainage line buffers) or other sensitive areas.

29.4 Environmental Incidents

All material environmental incidents and near misses must be reported to the responsible supervisor and ECO/EO as soon as practicable. The incident record must document the date, location, nature of the incident, receptors affected, immediate response, cause, corrective action and close out evidence.

Repeated wildlife collisions, avifaunal mortalities, spills, erosion, unauthorised clearing or other recurring impacts must trigger review of the existing control and specialist input where necessary.

29.5 Notification and Reporting

Booysendal must determine whether an environmental incident requires notification to a competent authority in terms of the EA, water use approval, other permit or applicable legislation. Where notification is required, it must be completed within the prescribed timeframe and supported by the available incident information and follow-up report where applicable.

30 ENVIRONMENTAL AWARENESS PLAN

The Environmental Awareness Plan establishes the arrangements for communicating environmental risks, responsibilities and management requirements to employees, contractors, subcontractors and relevant visitors involved in the Project. It applies throughout the Project lifecycle and forms part

of the EMPr.

The Plan must be implemented in conjunction with the environmental management framework in Section 24.4, the general and phase-specific management measures in Sections 24.12 to 24.15, and the environmental monitoring, compliance and incident management requirements in Sections 27 to 29.

30.1 Manner in Which the Applicant Intends to Inform His or Her Employees of Any Environmental Risk Which May Result from Their Work

30.1.1 Environmental Induction and Awareness Training

Booysendal will ensure that all employees, contractors and subcontractors complete environmental induction before commencing work on the Project. Relevant visitors must also be informed of the environmental restrictions and requirements applicable to their activities. Training must be appropriate to the nature of the work and presented in a language and format understood by the personnel concerned.

Environmental induction will address the environmental risks and management requirements associated with the Project, including:

- The authorised development footprint, approved access routes, designated no-go areas, 20 m scientific wetland buffer and 15 m non-perennial drainage line scientific buffer.
- Protection of indigenous vegetation, sensitive habitats, fauna, avifauna and water resources.
- Soil protection, erosion prevention, stormwater management and restrictions on unnecessary vegetation clearing.
- Waste management, hazardous-substance handling, spill prevention and response, and fire safety.
- Vehicle movement restrictions, speed limits and measures to prevent wildlife injury or mortality.
- Implementation of the CFP and FFP.
- Environmental incident reporting, emergency procedures and individual responsibilities under the EMPr.

Personnel undertaking activities with elevated environmental risks, including vegetation clearing, earthworks, excavation, construction near sensitive areas, hazardous-substance handling and decommissioning, must receive additional activity-specific instruction before commencing the relevant work.

Refresher training and toolbox talks will be undertaken where environmental risks, work areas, procedures or authorisation requirements change, and following significant incidents or repeated non-conformances. Environmental requirements must also be incorporated into relevant method

statements and communicated to personnel before high-risk activities commence.

30.1.2 Environmental Responsibilities and Training Records

All personnel must understand their responsibility to comply with the EMPr, remain within approved work areas, protect environmentally sensitive features and report environmental incidents or concerns. Hunting, trapping, collecting or deliberately harming indigenous fauna, removing protected plants without the required authorisation, entering designated no-go areas and unlawfully disposing of waste are prohibited.

Environmental incidents, including spills, unauthorised clearing, wildlife injuries or mortalities, disturbance of wetlands or scientific buffers, erosion and heritage or fossil discoveries, must be reported promptly to the responsible supervisor and ECO or EO.

Signed induction registers, refresher training records and toolbox-talk attendance registers must be maintained. These records must identify the training date, subject, trainer and attendees and be available for inspection and compliance auditing.

30.2 Manner in Which Risks Will Be Dealt with in Order to Avoid Pollution or the Degradation of the Environment

30.2.1 Prevention and Control of Environmental Risks

Environmental risks will be managed in accordance with the mitigation hierarchy and the management measures prescribed in Sections 24.12 to 24.15 of the EMPr. The emphasis will be on preventing impacts through appropriate planning, demarcation, work procedures and environmental controls rather than relying on remediation after environmental damage has occurred.

Before potentially disturbing activities commence, the applicable environmental constraints must be confirmed, required permits and specialist clearances obtained, and relevant environmental hold points completed. The Project Manager and Contractor must ensure that approved method statements and appropriate pollution prevention measures are implemented.

Particular attention must be given to preventing unauthorised disturbance of wetlands, drainage features and sensitive habitats; protecting soils and natural drainage processes; controlling erosion and sedimentation; and preventing contamination from fuels, chemicals, wastewater and waste. The applicable controls, responsibilities and monitoring requirements are specified in the general, construction, operational and decommissioning management measures of the EMPr.

30.3 Environmental Incident Response and Corrective Action

All personnel must be familiar with the procedures for reporting and responding to environmental incidents. Where an incident occurs, the affected activity must be stopped or modified where necessary to prevent further harm, and immediate containment or protective measures must be implemented where safe to do so.

Incidents and non-conformances must be reported, investigated, documented and addressed through appropriate corrective and preventative actions. Material incidents must be escalated to

Booysendal, and the relevant competent authority must be notified where required by legislation or an applicable authorisation.

The detailed procedures for environmental incident reporting, emergency response, investigation, statutory notification and corrective action close out are provided in Sections 24.4.11, 28 and 29 of the EMPr.

30.3.1 Monitoring and Continuous Improvement

The ECO or EO will monitor the implementation of environmental awareness requirements through inspections, training-record reviews and compliance monitoring. Where deficiencies in environmental understanding or recurring non-conformances are identified, additional training, toolbox talks or revisions to work procedures must be implemented.

Environmental awareness activities will be reviewed as necessary to reflect changes in Project activities, environmental risks, specialist recommendations and applicable authorisation conditions. The findings of environmental inspections, monitoring and audits will inform improvements to training and risk management practices throughout the Project lifecycle.

These arrangements are intended to ensure that personnel understand the environmental consequences of their activities and are equipped to implement the preventative, management and corrective measures prescribed in the EMPr.

31 REVIEW AND AMENDMENT OF THE ENVIRONMENTAL MANAGEMENT PROGRAMME

The EMPr must remain a living management document and must be reviewed where circumstances arise that could affect the adequacy or effectiveness of the prescribed environmental controls.

A review must be undertaken where:

- There is a material change to the approved Project layout, technology, infrastructure, construction methodology or operational activities;
- New information or environmental sensitivity information becomes available;
- Monitoring or auditing identifies that an existing mitigation or management measure is ineffective or insufficient;
- A material environmental incident, repeated non-compliance or unforeseen impact occurs;
- Corrective or adaptive management measures require formal incorporation into the EMPr; or
- An EA, permit, licence or other competent authority condition requires the EMPr to be amended.

Any revision to the EMPr must be subject to appropriate document control, including identification of the revision, date, reason for amendment and responsible person. Relevant changes must be

communicated to affected employees, contractors and other responsible parties before the revised requirements are implemented.

An amendment to the EMPr may not be used to authorise activities outside the scope of the EA, remove or weaken a statutory requirement, or permit an environmental impact that has not been appropriately assessed. Where a Project change may result in a new or increased environmental impact, extend beyond an approved footprint or condition, or affect a sensitive environmental feature not previously assessed, the EAP and relevant specialist(s) must review the proposed change before implementation.

Where required, the applicable notification, amendment, specialist assessment or additional authorisation process must be completed before the proposed change is implemented.

32 SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

At the time of preparation of this Report, no additional project-specific information or requirements have been requested by the DMPR beyond those prescribed in the applicable environmental legislation and regulations.

Should the DMPR request additional information, clarification or supporting documentation during the assessment of the application, such information will be provided within the applicable regulatory timeframes. Any additional requirements stipulated by the DMPR will be addressed, where applicable, in the FBAR and associated EMPr.

33 UNDERTAKING

Environmental Assessment Practitioner: Paula Tolksdorff
Consultancy: GCS Environment South Africa (Pty) Ltd
EAPASA Registration Number: 2019/509
SACNASP Registration Number: 152904

I, the undersigned, hereby declare that:

- I act as the independent EAP responsible for the environmental assessment process associated with the proposed Project.
- I am independent of the Applicant and have no business, financial, personal or other interest in the proposed Project, other than fair remuneration for work performed in connection with the environmental assessment process.
- I have the necessary expertise, qualifications and knowledge of the NEMA, the EIA Regulations, 2014, and relevant environmental legislation to undertake the work for which I have been appointed.
- I will perform the work relating to the application in an objective manner, even if the findings and recommendations are not favourable to the Applicant.
- I will comply with the requirements of Regulation 13 of the EIA Regulations, 2014, and all other applicable legislative requirements.
- I will ensure that the Competent Authority has access to all relevant information at my disposal regarding the application, whether such information is favourable or unfavourable to the Applicant.
- I will disclose to the Applicant and Competent Authority all material information in my possession that reasonably has or may have the potential to influence any decision to be taken in respect of the application or the objectivity of any report, plan or document prepared in connection with the application.
- I will ensure that the views and concerns of interested and affected parties are appropriately considered and accurately reflected in the environmental assessment documentation.
- I will not withhold information or make misleading statements regarding the environmental impacts, findings, recommendations or outcomes of the environmental assessment process.
- I undertake to comply with the applicable professional standards and ethical requirements governing registered EAPs.

I confirm that the information contained in this declaration is true and correct to the best of my knowledge and that I understand the responsibilities associated with my appointment as the EAP.

Paula Tolksdorff

Digitally signed by Paula Tolksdorff
Date: 2026.11.05 10:02:22 +02'00'

Signature:

Date: 5 November 2026

34 REFERENCES

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APPENDIX A: ENVIRONMENTAL ASSESSMENT PRACTITIONER'S CURRICULUM VITAE, QUALIFICATIONS, PROFESSIONAL REGISTRATIONS

APPENDIX B: SCREENING TOOL REPORT

APPENDIX C: SOIL AND AGRICULTURAL COMPLIANCE STATEMENT

APPENDIX D: TERRESTRIAL BIODIVERSITY ASSESSMENT

APPENDIX E: AVIFAUNA ASSESSMENT

APPENDIX F: WETLAND FUNCTIONAL AND IMPACT ASSESSMENT

APPENDIX G: HYDROPEDOLOGICAL ASSESSMENT

APPENDIX H: HERITAGE IMPACT ASSESSMENT

APPENDIX I: VISUAL IMPACT ASSESSMENT

APPENDIX J: FINAL REHABILITATION, DECOMMISSIONING AND MINE CLOSURE PLAN