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Seriti Power (Pty) Ltd

SCOPING AND ENVIRONMENTAL IMPACT REPORTING PROCESS FOR THE WATER MANAGEMENT STRATEGY AT THE SERITI ROY POINT COLLIERY, NEWCASTLE, KZN

Draft Scoping Report



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PUBLIC REVIEW OF THE SCOPING REPORT

This Draft Scoping Report is made available for comment for 30 days on WSP's website and at the public places in the project area listed in the table below:

Name of Public Place	Address
WSP Website	https://www.wsp.com/en-za/services/public-documents
Newcastle Public Library	66 Scott Street, Newcastle CBD
Seriti Website	https://seritiza.com/

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EXECUTIVE SUMMARY

BACKGROUND AND INTRODUCTION

WSP Group Africa (Pty) Ltd (WSP) has been appointed by Seriti Power (Pty) Ltd (Seriti) to conduct the Scoping and Environmental Impact Reporting (S&EIR) process associated with the implementation of sustainable forestry as a post mining land use at Roy Point Colliery located south of Newcastle along the N11 on the Farm Roy Point 2959, KZN Province.

Mining operations at the Roy Point Colliery ceased in 1992 after which, the mine started work on a closure and rehabilitation. Since the termination of the mining activities, groundwater recharge into the Roy Point Colliery has exceeded natural drainage into a deeper aquifer which resulted in a positive water balance. Therefore, as part of the ongoing planned care and maintenance of the mine, Seriti proposes a long-term water management strategy which includes forestry¹, restoration and lining of evaporation dams and controlled release of water into the Knockbex River from the Southern Compartment.

This DSR has been compiled as part of the Scoping Phase in the S&EIR process.

PURPOSE OF THE SCOPING REPORT

In summary, the purpose of the DSR is to provide information regarding:

- The Environmental Impact Assessment (EIA) process as stipulated in the National Environmental Management Act (No. 107 of 1998) (NEMA) EIA Regulations 2014, as amended (EIA Regulations), including the process to be followed in conducting the environmental and social impact assessment, and the stakeholder engagement including consultation with regulatory authorities,
- The policy and legislative context for the project,
- A motivation for the need and desirability for the project, in the context of the preferred location,
- The proposed activities, the location of the project and activities to be undertaken,
- The plan of study for the impact assessment phase,
- The current baseline environmental conditions within the project footprint;
- The potential environmental and social impacts provisionally identified for the project,
- The alternatives being investigated, and
- The methodology used to assess the significance of the impacts.

NEED AND DESIRABILITY OF THE PROJECT

As detailed in Section 2 of this report (Project Description), the Roy Point Colliery is currently under care and maintenance. Water has been accumulating in the underground workings and rehabilitated opencast areas of the mine, and a long-term water management strategy is required to effectively manage the mine water on the site. At present, the mine's water is managed by controlled release of the excess water from the Southern Compartment via a valve system. The controlled discharge of water into the Knockbex River takes place under DWS 2016 directive when the Ingagane River flow

¹ Seriti has successfully carried out forestry trials at the site over roughly the last decade

SUMMARY OF THE PROJECT

Long-term water management strategies are necessary; accordingly, the implementation of a lined evaporation dam and the use of forestry for evapotranspiration (referred to in this document as forestry) have been proposed. These measures are expected to decrease groundwater recharge to the underground workings and rehabilitated opencast areas and minimise decant (overflow and/or seepage) from mined areas. The proposed areas of development are indicated in **Figure 2** and described in more detail below.

The following water management actions/plans are associated with the water uses being applied for:

- The Base case Water Management Arrangement for the first 0 – 2 years:
 - Planting of trees;
 - Pumping of mine water from the rehabilitated Northeast and Northwest Opencast to the Northern Compartment which overflows to the Southern Compartment;
 - Continued controlled release into the Knockbex River (under DWS 2016 directive) from the Southern Compartment;
 - Southern Compartment outflow will continue to be discharged into the unlined Evaporation dams where evaporation will occur; and
 - Pumping of water from the Harris Compartment to the Southern compartment.
- The Interim Water Management Arrangement from years 2 – 6:
 - Evapotranspiration is expected to become increasingly significant during this phase as the tree blocks mature with associated increased root penetration and canopy size;
 - Continued pumping of water from the Harris Compartment to the Southern Compartment;
 - Continued pumping of water from the Rehabilitated Opencast areas to the Northern Compartment;
 - Construction of an overflow management system at the outflow of the Southern Compartment to improve the management of the controlled releases and the transfer system to the Evaporation Dam for overflow; and
 - Lining of compartments of the existing evaporation dams to maximise evaporation.
- The Long-term Water Management Arrangement from year 7 onwards:
 - Managed overflow from Southern compartment by establishing forests to decrease water infiltration into the mine workings via increased evapotranspiration as trees are expected to optimally take up water during this phase;
 - Continued pumping from Harris underground compartment and the rehabilitated opencast areas to the Southern Compartment and Northern Compartment, respectively;
 - The Northern Compartment water is expected to reach an elevation in the underground compartment where it will connect hydraulically with the Southern Compartment;
 - Water released from the Southern Compartment through the sealed adit will continue to be discharged to the lined evaporation dam;
 - Controlled releases to the Ingagane River may continue to be intermittently required and, if necessary, will take place under the agreed high flow river conditions.

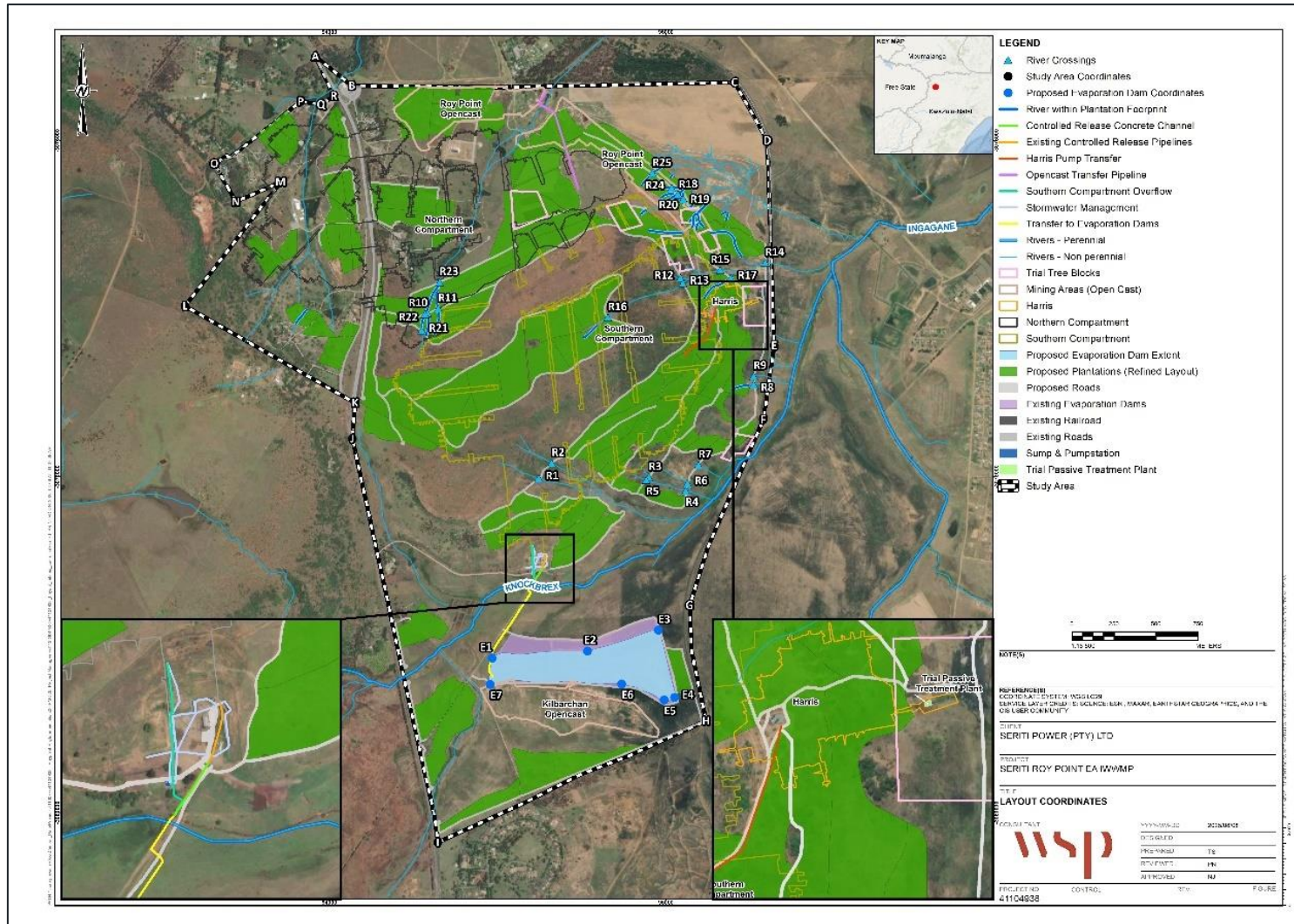


Figure 2: Layout map of the water management strategy for the Roy Point Colliery

BASELINE AND SITE SENSITIVITY

A Department of Forestry, Fisheries and the Environment (DFFE) Screening Report for the proposed project was generated and is attached as **Appendix D**. The Screening Report for the project identified various sensitivities for the site. The report also generated a list of specialist assessments that should form part of the S&EIR process based on the development type and the environmental sensitivity of the site. Assessment Protocols in the report provide guidance on the minimum information to be included in a specialist report to facilitate decision-making.

Table 1 below provides a summary of the sensitivities identified for the development footprint.

Table 1: Site Sensitivities and Verification

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity	Preliminary scoping assessment and Protocol for Specialist Study
Agriculture Theme		X			The DFFE Screening Tool does not prescribe a protocol of the agricultural theme, therefore a specialist assessment will not be undertaken. The site is considered high sensitivity due to the very high land capability rating. However, based on the location of the site within a closed mine, the high sensitivity is refuted. An Agricultural Assessment will not be conducted, however a Hydropedology study has been undertaken.
Animal Species Theme		X			The DFFE Screening Tool prescribed that an animal species assessment be conducted based on the likely presence of sensitive avifaunal and mammal species. The site verification by the terrestrial biodiversity specialist conducted on 21-23 November 2023 confirmed that one species highlighted in the screening report as a potentially sensitive species was observed foraging on-site during the field survey, viz. Southern Bald Ibis (Vulnerable). Habitat suitability assessments further indicate that several other fauna Species of Conservation Concern (SCC) that are known to occur in the broader region, may be present in the study area.

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity	Preliminary scoping assessment and Protocol for Specialist Study
					Therefore, a terrestrial animal species assessment has been incorporated into the Terrestrial Biodiversity Assessment.
Aquatic Biodiversity Theme	X				The DFFE Screening Tool prescribed that an Aquatic Biodiversity Assessment be undertaken. The field surveys undertaken on 17-19 October 2023 and 21-23 February 2024 confirmed that there is low aquatic biodiversity within the assessed systems. A Wetland Assessment was also conducted which confirmed the presence of wetlands on site, assessed the wetland health and potential impacts on the wetlands. In addition, an Aquatic and Freshwater Assessment was also conducted.
Archaeological and Cultural Heritage Theme	X				The DFFE Screening Tool prescribed that a Heritage Impact Assessment be undertaken for the archaeological and cultural heritage theme due to the northern area of the site being located within 2km from a Grade II Heritage Site. As part of the Heritage Impact Assessment, a field survey was undertaken on 19 February 2024. The site visit confirmed the presence of a number of Late Iron Age stone walled settlement remains as well as recent historical graves and grave sites which will not be impacted upon by the proposed development.
Civil Aviation Theme		X			The DFFE Protocol requires that a site verification be undertaken by the EAP or a specialist as the site is located between 8 and 15km from a civil aviation aerodrome.
Defence Theme				X	The DFFE protocol requires that a site verification be undertaken by an EAP for the defence theme.

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity	Preliminary scoping assessment and Protocol for Specialist Study
Palaeontology Theme	X				The DFFE Screening Tool prescribed that a site verification be undertaken for the palaeontology theme. A Phase 1 Palaeontology Assessment was undertaken by a specialist in October 2023. Fossils were not identified during the walk through by the specialist.
Plant Species Theme			X		The DFFE Protocol requires that a compliance statement be completed for the site. A field survey was conducted by a specialist on 21-23 November 2025. No threatened or Near Threatened flora species were recorded in the study area during the field survey. A plant species assessment will be incorporated into the Terrestrial Biodiversity Assessment.
Terrestrial Biodiversity Theme	X				The DFFE Screen Tool prescribed that a Terrestrial Biodiversity Assessment be undertaken based on the Critical Biodiversity Area that the project area falls within. A field survey was conducted by a specialist on 21-23 November 2025. The specialist confirmed that it is evident that large portions of the study area, as well as patches of the surrounding landscape, are designated as Critical Biodiversity Area CBA Optimal. It is noted however, that based on field observations and a study of aerial imagery, the KZNBSPP delineations do not account for certain localised sites that have been modified. Several areas that are either highly disturbed or no longer contain natural habitat (transformed), are currently designated CBA Optimal, including inter alia, alien tree stands, portions of the former opencast pits (now rehabilitated grasslands), cultivated fields, miniature golf course, and

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity	Preliminary scoping assessment and Protocol for Specialist Study
					various sites of built infrastructure (e.g., wedding and function venues and agricultural buildings). A specialist will be commissioned to undertake the Terrestrial Biodiversity Assessment.
Other site sensitivities identified					
Hydropedology					A desktop review of the original specialist study undertaken by Jones and Wagener in 2017, was undertaken by WSP in 2024. The review concluded that the hydropedology response units at Roy Point include 62% recharge, 29% interflow soils, 7% responsive soils, and 2% stagnating soils. Future forestry areas cover a proposed area of 431.6 ha (or 43% of entire Roy Point area). The hydropedology response units of the future forestry areas are 55% recharge, 42% interflow soils, 1% responsive soils, and 1% stagnating soils. The purpose of the proposed forestry is specifically to intersect water, where possible before it enters mining areas or to intersect areas where decant/seepage exits mined areas. Consequently, some localised desiccation of wetland systems, specifically where the forestry areas are on interflow soils may occur. At catchment scale, the future forestry area covers 0.1% of catchment V31J and 1.74% of catchment V31K. In terms of impact on river flow for the quaternary catchment areas, this will be an insignificant impact. While lining of the evaporation dam may reduce localised baseflow to the river this will be offset by the beneficial effects of containing mine affected water on site.
Hydrogeology					The site has previously been modelled. A site visit and

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity	Preliminary scoping assessment and Protocol for Specialist Study
					hydrocensus was conducted on 25-28 March 2024 and 9-12 April 2024 within a 3 km radius around the mine area. The hydrocensus data will be used to determination of the volumes of water that will be reduced by the plantations.
Water and Salt Balance (WSB)					The key project objective is to develop a WSB for Roy Point Colliery to function as a reporting and management tool which represents the site under current and planned management practices. Seriti requires the following water management options to be developed as part of the mine water management strategy for Roy Point: ■ Controlled Release – excess water from the southern compartment will be released into the Knockbrex Stream. ■ Evapotranspiration (ET) - Implementation of forestry as a closure land use to minimise new water (largely rainfall infiltration) ingress into the opencast and underground workings. ■ Evaporation – Evaporation of mine affected water in the evaporation dam to prevent decant of dirty water into the rivers. In addition, the study is required to: ■ Assess the water pollution sources and their responses to climate and groundwater influences. ■ Confirm and further identify and quantify seepage and leakage points. ■ Provide the necessary information to inform the water management strategy. ■ Assist with the design of water management solutions including storage, treatment and evaporation to minimise the risk

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity	Preliminary scoping assessment and Protocol for Specialist Study
					of spillage and seepage to the receiving environment.
Surface Water Assessment					The Surface Water Impact Assessment will be undertaken in support of the permitting process for the long-term water management measures for the Roy Point Colliery and: Provides an overview of the project area's surface water baseline settings before implementing the proposed project. Provides an overview of the site's climatic and hydrological setting. Identifies potential surface water impacts associated with the project. Undertakes a surface water impact assessment of each identified impact. Proposes mitigation and management measures to minimise potential impacts.

LEGISLATIVE CONTEXT

In terms of Section 24(2) of the NEMA, the Minister may identify activities which may not commence without prior authorisation. The Minister thus published GNR 327 (Listing Notice 1), 325 (Listing Notice 2) and 324 (Listing Notice 3), as amended, listing activities that may not commence prior to authorisation.

The regulations outlining the procedures required for authorisation are published in the EIA Regulations. Listing Notice 1 identifies activities that require a BA process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity. Listing Notice 2 identifies activities that require an S&EIR process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity. Listing Notice 3 identifies activities within specific areas that require a BA process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity.

WSP undertook a legal review of the listed activities according to the proposed project description to conclude that the activities listed in this section are considered applicable to the development: A S&EIR process must be followed.

The S&EIR process is undertaken in accordance with the NEMA EIA Regulations. The table below is a list of the triggered activities under the EIA Regulations.

Table 2: Listing Notice 1,2 and 3 activities triggered under the NEMA Regulations

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
10	The development and related operation of infrastructure exceeding 1 000 metres in length for the bulk transportation of sewage, effluent, process water, wastewater, return water, industrial discharge or slimes – (i) with an internal diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more; excluding where— (a) such infrastructure is for the bulk transportation of sewage, effluent, process water, wastewater, return water, industrial discharge or slimes inside a road reserve or railway line reserve; or (b) where such development will occur within an urban area.	Underground outflow pipelines are existing however there are extended control release pipelines and transfer pipelines to the evaporation dam which exceeds 1000m in length and less than 0.36 m (0.2m) in diameter and 120 litres per second therefore this activity is not applicable.
12	The development of 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; (dd) where such development occurs within an urban area.	The proposed project includes several areas where roads intersect with wetlands/rivers which will result in several new water crossing points exceeding 100 square metres over the entire study area therefore this activity is applicable.
13	The development of facilities or infrastructure for the off-stream storage of water, including dams and reservoirs, with a combined capacity of 50 000 cubic metres or more, unless such storage falls within the ambit of activity 16 in Listing Notice 2 of 2014.	The existing evaporation dam will be redesigned for the long-term water management strategy therefore it does not constitute development; this activity is not applicable.
24	The development of a road— with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres	The new roads will have a width of 4 m therefore this activity is not applicable.

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
	but excluding a road— (a) which is identified and included in activity 27 in Listing Notice 2 of 2014; (b) where the entire road falls within an urban area; or (c) which is 1 kilometre or shorter.	
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.	Clearance of indigenous vegetation is expected to be more than 1 Ha, the total area to be cleared will be confirmed during the specialist investigations therefore this activity is applicable.
30	Any process or activity identified in terms of section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).	Removal of vegetation that will require a process/ permit under the NEM:BA. It is possible that the project will require the removal of species that will trigger the need for permits under the NEM:BA. These will be confirmed during the specialist investigation therefore this activity is potentially applicable.
Activity No(s):	Provide the relevant Scoping and EIA Activity(ies) as set out in Listing Notice 2 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
6	The development of facilities or infrastructure for any process or activity which requires a permit or licence or an amended permit or licence in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent,	A Water Use License Application (WULA) is being undertaken in accordance with the National Water Act (Act 36 of 1998) as the proposed activities involves river, wetland or stream crossings and the discharge of effluent into a watercourse therefore this activity is applicable.
11	The development of facilities or infrastructure for the transfer of 50 000 cubic metres or more water per day, from and to or between any combination of the following- (i) water catchments; (ii) water treatment works; or (iii) impoundments; excluding treatment works where water is to be treated for drinking purposes.	The transfer of water from the Harris Compartment and the opencast mined areas back into the Northern and Southern Compartments may be considered impoundments therefore this activity is applicable.

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
13	The physical alteration of virgin soil to agriculture, or afforestation for the purposes of commercial tree, timber or wood production of 100 hectares or more.	The proposed project footprint exceeds 100 hectares therefore there will be physical alteration of virgin soil to afforestation making this activity applicable .
15	The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for – the undertaking of a linear activity; or maintenance purposes undertaken in accordance with a maintenance management plan.	Indigenous vegetation clearing will exceed 20 Ha, therefore this activity is applicable .
Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 3 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates. Ensure to include thresholds/area/footprint applicable.
4	The development of a road wider than 4 metres with a reserve less than 13,5 metres. viii. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;	Development of the new access roads will total approximately 63 km with a road width of 4m within a CBA; therefore this activity is applicable .
12	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. v. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans	Indigenous vegetation to be cleared will exceed 300 square metres in a CBA therefore this activity is applicable .
14	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	The project includes forestry development in a CBA therefore this activity is applicable

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
	(c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse; In KZN. vii Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans.	

SUMMARY OF IMPACTS TO BE FURTHER INVESTIGATED

The table below is a summary of the impacts identified during the Scoping Phase that will require further assessment during the EIA Phase.

Table 3: Impacts identified during the Scoping Phase

Aspect	Impact	Significance (Before Mitigation)	Further Assessment Required
Topography and Geology	Constructability	Medium	Yes (Geotechnical Assessment)
Aquatic and Freshwater Environment	Activities associated with the forestry/road development – bush clearing, removing and moving of soil and rocks resulting in the increase in potential for erosion, the mobilization of pollutants, and the introduction of alien species.	High	Yes (Aquatic and Freshwater Impact Assessment)
	Continued decant and/or release of mine water to the Knockbrex Stream leading to water quality and quantity modifications.	High	
	Reduction in catchment yield due to water uptake by the plantations.	Medium	
	Disturbance of wetland habitat due to earthworks for roadworks	Medium	
	Changes in wetland health, functioning and hydrology	High	
	Wetland soil erosion	Medium	
	Spread of AIS during operation	Medium	
Hydropedology	Changes in water chemistry of the affected wetlands and watercourses	High	

Aspect	Impact	Significance (Before Mitigation)	Further Assessment Required
	Reduction of baseflow as a result of the liners at the evaporation dam	Medium	Yes (Desktop hydrogeology assessment)
	Lining of the dam will result in the prevention of poor-quality water entering the aquifer and stream	Medium	
Surface and groundwater	Decant to the surface stream and uncontrolled decant is mitigated	Medium	Yes (Hydrogeology Assessment)
	Impacts of discharge on surface water quality	Medium	
	Reduction in volume of water to the rehabilitation open pits.	Medium	
	Forestry cover over the regional aquifer resulting in reduced, minimal or no discharge to the Knockbex River	Medium	
	Forestry cover over the regional aquifer resulting in the lowering of the water levels and reduced water to the adjacent groundwater users	Medium	
	Release of water to the surface water catchment – the proposed relined evaporation dams are in the footprint of the existing evaporation dams adjacent to the rehabilitated Kilbarchan opencast area. Potential of leachate or overflow of contaminated water stored in the dams into groundwater	Medium	
Terrestrial Biodiversity	Habitat fragmentation affecting ecological processes	Medium	Yes (Terrestrial Biodiversity Assessment)
	Direct loss and disturbance of habitat	High	
	Establishment and Spread of Alien Invasive Species associated with forestry	Medium	
	Loss and Fragmentation of Faunal and floral habitats	High	
	Injury and mortality of faunal and floral Species of Conservation Concern	Medium	

Aspect	Impact	Significance (Before Mitigation)	Further Assessment Required
Heritage and Cultural Resources	Disturbance to known cultural resources and grave sites	High	Yes (Archaeological and Heritage Impact Assessment)
	Chance Find of Cultural Resources	Low	
Palaeontology	Chance Find of Palaeontological resources	Low	Yes (Desktop Palaeontology Impact Assessment)
Socio-Economic	Creation of local employment, training, and business opportunities	Low	Yes (Socio-economic Impact Assessment)
	Increased opportunity for local businesses and suppliers	Medium	
	Impact of construction workers on local communities	Very low	
	Nuisance impacts associated with construction related activities	Low	
	Noise impacts on adjacent communities	Medium	
	Noise impacts on fauna during construction	Medium	
Traffic	Increased traffic generation around the study area by construction vehicles	Low	No
	Deterioration of the surrounding road network due to an increase of traffic around the site	Low	
	Transportation of abnormal loads during the construction phase	Low	
	Increased traffic due to new roads to and from the project area	Low	

SUMMARY OF THE SCOPING AND ENVIRONMENTAL IMPACT REPORTING PROCESS

The S&EIR process consists of various phases with associated timelines as defined in the EIA Regulations. The process can generally be divided into four main phases, namely; (i) an unregulated pre-application phase, (ii) an Application and Scoping Phase (**current phase**), (iii) an Impact Assessment Phase and (iv) Authorisation and Appeal Phase.

The main objectives of the phases can be described as follows:

- Pre-Application Phase:
 - Undertake consultation meetings with the relevant authorities to confirm the required process and general approach to be undertaken;
 - Identify stakeholders, including neighbouring landowners/residents and relevant authorities;
 - Compile a DSR describing the affected environment and present an analysis of the potential environmental issues and benefits arising from the proposed project that may require further investigation in the Impact Assessment Phase;
 - Develop draft Terms of Reference for the specialist studies to be undertaken in the EIA Phase; and
 - Inform stakeholders of the proposed project, feasible alternatives and the S&EIR process and afford them the opportunity to register and participate in the process and identify any issues and concerns associated with the proposed project.
- Application and Scoping Phase:
 - Compile and submit application forms to the CA and pay the relevant application fees;
 - Incorporate comments received from stakeholders during the pre-application phase into the DSR;
 - Release the DSR for a 30-day comment period to provide stakeholders with the opportunity to review as well as provide input; and
 - Submit the finalised Final Scoping Report (FSR), following the consultation period, to the relevant CA, in this case the DMRE, for acceptance/rejection.
- Impact Assessment Phase:
 - Continue to inform and obtain contributions from stakeholders, including relevant authorities, stakeholders, and the public and address their relevant issues and concerns;
 - Assess in detail the potential environmental and socio-economic impacts of the project as defined in the DSR;
 - Conduct the required specialist studies in accordance with Appendix 6 of the EIA Regulations;
 - Identify environmental and social mitigation measures to avoid and/or address the identified impacts;
 - Develop and/or amend environmental and social management plans based on the mitigation measures developed in the EIR;
 - Submit the EIR to the competent authority to undertake the decision-making process;
 - Authorisation and Appeal Phase;
 - The CA to provide written notification of the decision to either grant or refuse environmental authorisation for the proposed project; and



- Notify all registered stakeholders of the decision and right to appeal.

CONCLUSION

A number of environmental impacts have been identified which require more in-depth investigation and the identification of detailed mitigation measures, namely the impacts on the aquatic and terrestrial environment. Therefore, a detailed EIA is required to be undertaken to assess these potential impacts and recommend appropriate mitigation measures. The scoping phase did not identify any fatal flaws associated with the project.

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ABBREVIATIONS

Abbreviation	Definition
AIS	Alien Invasive Species
BPEO	Best Practicable Environmental Option
CA	Competent Authority
CARA	The Conservation of Agricultural Resources Act (No. 43 of 1983)
CBA	Critical Biodiversity Areas
CRR	Comments and Responses Report
CV	Curriculum Vitae
DFFE	Department of Forestry, Fisheries and the Environment
DMPR	Department of Mineral and Petroleum Resources
DSR	Draft Scoping Report
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIA Regulations	Environmental Impact Assessment Regulations, 2014, as amended (GNR 326)
ESAs	Ecological Support Areas
FSR	Final Scoping Report
GA	General Authorisation
Ha	Hectares
MCO	Mine Closure Operations
MPRDA	Mineral Petroleum Resources Development Act
NDP	National Development Plan of 2030
NEMAQA	National Environmental Management Air Quality Act
NEMBA	National Environmental Management: Biodiversity Act, 2004 (No. 10 of 2004)
NEMA	National Environmental Management Act (No. 107 of 1998)

Abbreviation	Definition
NEMWA	National Environmental Management Waste Act
NHRA	The National Heritage Resource Act (No. 25 of 1999)
NWA	The National Water Act (No. 36 of 1998)
ONAs	Other Natural Areas
PPP	Public Participation Process
SAHRA	South African Heritage Resources Agency
SANBI	South African National Biodiversity Institute
S&EIR	Scoping and Environmental Impact Reporting
SCC	Species of Conservation Concern
SR	Scoping Report
WUL	Water Use License
WULA	Water Use License Application

1 INTRODUCTION

WSP Group Africa (Pty) Ltd (WSP) has been appointed by Seriti Power (Pty) Ltd (Seriti) to conduct the Scoping and Environmental Impact Reporting (S&EIR) process associated with the implementation of sustainable forestry as a post mining land use at Roy Point Colliery located south of Newcastle along the N11 on the Farm Roy Point 2959, KZN Province (**Figure 2-1**). The Roy Point Colliery formed part of the currently defunct Kilbarchen Colliery at that time.

Mining operations at the Roy Point Colliery ceased in 1992 after which, the mine started work on a closure and rehabilitation. Since the termination of the mining activities, groundwater recharge into the Roy Point Colliery has exceeded natural drainage into a deeper aquifer which resulted in a positive water balance. Therefore, as part of the ongoing planned care and maintenance of the mine, Seriti proposes a long-term water management strategy which includes forestry², restoration and lining of evaporation dams and controlled release of water into the Knockbrex River from the Southern Compartment.

This DSR has been compiled as part of the Scoping Phase in the S&EIR process.

1.1 PURPOSE OF THIS REPORT

This DSR documents the process and findings of the Scoping Phase of the S&EIR process for the proposed water management strategy.

The DSR aims to provide stakeholders with information on the proposed project including its considered location, layout and technological alternatives, identified potential impacts and the corresponding scope of the impact assessment and specialist studies, as well as the consultation process to be undertaken throughout the S&EIR process.

The outcome of this DSR has not identified any fatal flaws associated with the proposed project. The currently proposed footprint of the development may overlap with sensitive features identified by the participating specialists during the EIA Phase.

Subject to the outcome of the Public Participation Process (PPP), it is the reasoned opinion of WSP that the project should proceed to the EIA Phase.

1.2 BACKGROUND INFORMATION

1.2.1 HISTORY OF THE ROY POINT COLLIERY

Mining at Roy Point occurred from 1975 to 1993 and consisted of a combination of opencast and underground board and pillar mining. There was limited stooping (pillar thinning or pillar removal) in selected areas of the underground workings. The underground workings are naturally divided into Northern and Southern Compartments by a local topographical high point in the coal seam floor. Two opencast pits, the Northeast opencast and Northwest opencast, were mined north of the Roy Point underground sections.

² Seriti has successfully carried out forestry trials at the site over roughly the last decade

These pits are rehabilitated and are not directly connected to the underground workings. In addition to the Roy Point mining, the ownerless Harris underground workings are situated to the east of the southern compartment and fall within the care and maintenance boundary. The neighbouring Kilbarchan rehabilitated opencast mining pits to the south of Roy Point are located within the Seriti Surface Rights.

Figure 1-1 below depicts the extended historical mining at the Roy Point Colliery and the boundary within which the proposed activities (forestry and infrastructure refurbishment) will take place.

Figure 1-1 – Extent of the past mining activities at the Roy Point Colliery and position of infrastructure forming part of the water management strategy

1.3 KEY ROLE PLAYERS

1.3.1 PROJECT PROPONENT

Seriti is the project proponent (Applicant) with regards to this application for the proposed water management strategy. **Table 1-1** provides the relevant details of the project proponent.

Table 1-1 – Details of Project Proponent

Proponent:	Seriti Power (Pty) Ltd
Contact Person:	Johan Van Der Walt
Postal Address	15 Chaplin Street (Cnr Oxford and Chaplin Roads) Illovo 2196
Telephone:	+27 71 371 3466
Email:	jj.vanderwalt@seritiza.com

1.3.2 COMPETENT AUTHORITY

According to Appendix 1 of Listing Notice 1 (GNR 327), the Competent Authority (CA) in respect of the activities listed in the Listing Notices is the CA in the province in which the activity is to be undertaken, unless—

(a) it is an application for an activity contemplated in section 24C(2) of the Act, in which case the competent authority is the Minister or an organ of state with delegated powers in terms of section 42(1) of the Act; or

(b) the listed or specified activity is or is directly related to—

i. prospecting or exploration of a mineral or petroleum resource; or

ii. extraction and primary processing of a mineral or petroleum resource; in which case the CA is the Minister responsible for mineral resources.

Since the proposed project is located at the existing Roy Point Colliery and directly relates to care and maintenance works at the mine, the Department of Mineral and Petroleum Resources (DMPR) is the CA. This was confirmed during the pre-application meeting held for the proposed project.

1.3.3 ENVIRONMENTAL ASSESSMENT PRACTITIONER

WSP was appointed in the role of EAP to undertake the S&EIR process for the proposed project. The Curriculum Vitae (CV) of the EAP is available in **Appendix A**. The EAP declaration of interest and undertaking is included in **Appendix B**.

Table 1-2 provides details the relevant contact details of the EAP.

Table 1-2 – Details of the EAP

EAP	WSP Group Africa (Pty) Ltd
Contact Person:	Rob Rowles
Physical Address:	WSP in Africa 1st Floor, Pharos House, 70 Buckingham Terrace, Westville 3629 South Africa
Telephone:	+27 72 548 1841
Email:	Rob.Rowles@wsp.com
EAP Qualifications and Registrations:	■ Masters in Environmental Management (MSc Environmental Management through University of Johannesburg, 2012 ■ Honours Degree in Geography and Environmental Science, University of KwaZulu-Natal 2008 ■ Bachelors of Social Science in Geography and Environmental Science, University of KwaZulu-Natal, 2007
EAPASA Registration No.:	■ 2022/5395

1.3.3.1 Statement of Independence

Neither WSP nor any of the authors of this DSR have any material present or contingent interest in the outcome of this report, nor do they have any business, financial, personal or other interest that could be reasonably regarded as being capable of affecting their independence. WSP has no beneficial interest in the outcome of the assessment.

1.4 SCOPING PHASE TERMS OF REFERENCE

The regulations outlining the procedures required for authorisation are published in GNR 326 known as the EIA Regulations.

The EIA Regulations identify the proposed project as one which triggers a S&EIR process due to the applicable activities contained within the EIA Listing Notices 1, 2 and 3 published under the EIA Regulations. In order for the project to proceed, it will require an Environmental Authorisation (EA) issued by the DMPR.

As defined in Appendix 2 of the EIA Regulations, the objective of the scoping process is to, through a consultative process:

- Identify the relevant policies and legislation relevant to the activity;
- Motivate the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location;

- Identify and confirm the preferred activity and technology alternative through an impact and risk assessment and ranking process;
- Identify and confirm the preferred site, through a detailed site selection process, which includes an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified alternatives focusing on the geographical, physical, biological, social, economic, and cultural aspects of the environment;
- Identify the key issues to be addressed in the assessment phase;
- Agree on the level of assessment to be undertaken, including the methodology to be applied, the expertise required as well as the extent of further consultation to be undertaken to determine the impacts and risks the activity will impose on the preferred site through the life of the activity, including the nature, significance, consequence, extent, duration and probability of the impacts to inform the location of the development footprint within the preferred site; and
- Identify suitable measures to avoid, manage or mitigate identified impacts and to determine the extent of the residual risks that need to be managed and monitored.

The PPP is a requirement of scoping; it consists of a series of inclusive and culturally appropriate interactions aimed at providing stakeholders with opportunities to express their views, so that these can be considered and incorporated into the S&EIR decision-making process. An effective PPP requires the prior disclosure of relevant and adequate project information to enable stakeholders to understand the risks, impacts, and opportunities of the project. The objectives of the PPP can be summarised as follows:

- Identify relevant individuals, organisations and communities who may be interested in or affected by the project;
- Clearly outline the scope of the project, including the scale and nature of the existing and proposed activities;
- Identify viable project alternatives that will assist the relevant authorities in making an informed decision;
- Identify shortcomings and gaps in existing information;
- Identify key concerns, raised by stakeholders that should be addressed in the subsequent specialist studies;
- Highlight the potential for environmental impacts, whether positive or negative; and
- To inform and provide the public with information and an understanding of the proposed project, issues and solutions.

1.5 ASSUMPTIONS AND LIMITATIONS

This section provides a brief overview of specific assumptions and limitations having an impact on this environmental application process:

- It is assumed that the information on which this report is based (existing specialist studies and project information, as well as existing information) is correct, factual and truthful.
- The proposed development is in line with the statutory planning vision for the site, and thus it is assumed that issues such as the cumulative impact of development in terms of character of the area and its resources, have been considered during the strategic planning for the area.
- It is assumed that stakeholders notified of the availability of this report will submit all relevant comments within the designated 30-days review and comment period, so that these can be included in the FSR to be timeously submitted to the competent authority, the DMPR.

1.6 DRAFT SCOPING REPORT STRUCTURE

As per the Appendix 3 of the EIA Regulations, the legislated requirements must be contained within a SR for the CA to consider and come to a decision on the application.

Table 1-3 below details where the required information is located within this report.

Table 1-3 – Legislated Report Requirements as detailed in GNR 326

Section	Legislated requirements as per the NEMA GNR 326	Relevant Report Section
(a)	Details of	-
	the EAP who compiled the report; and	Section 1.3.3
	the expertise of the EAP, including a Curriculum Vitae	Appendix A
(b)	The location of the activity, including-	
	The 21digit Surveyor code for each cadastral land parcel;	Section 2.1
	Where available, the physical address and farm name	Section 2.1
	Where the required information in terms of (i) and (ii) is not available, the coordinates of the boundary of the property.	Section 2.1
(c)	A plan which locates the proposed activities applied for at an appropriate scale, or, if it is-	
	A linear activity, a description of the corridor in which the proposed activity or activities is to be undertaken; or	Section 2.1
	On land where the property has not been defined, the coordinates within which the activity is to be undertaken.	Section 2.1
(d)	A description of the proposed activity, including-	
	All listed and specified activities triggered;	Section 4.1
	A description of the activities to be undertaken, including associated structures and infrastructure;	Section 2
(e)	A description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process;	Section 4.1

Section	Legislated requirements as per the NEMA GNR 326	Relevant Report Section
(f)	A motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location;	Section 3
(h)	A full description of the process followed to reach the proposed preferred activity, site and location within the site, including-	
	Details of all the alternatives considered;	Section 2
	Details of the public participation undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;	Section 5
	a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;	Section 5
	the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Section 6
	the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts- (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated;	Section 7
	the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;	Section 5
	positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Section 7
	the possible mitigation measures that could be applied and level of residual risk;	Section 7
	the outcome of the site selection matrix;	N/A
	if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such and	Section 2

Section	Legislated requirements as per the NEMA GNR 326	Relevant Report Section
	a concluding statement indicating the preferred alternatives, including preferred location of the activity;	Section 2
(i)	A plan of study for undertaking the environmental impact assessment process to be undertaken, including-	
	a description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity;	Section 8
	a description of the aspects to be assessed as part of the environmental impact assessment process;	Section 8
	aspects to be assessed by specialists;	Section 8
	a description of the proposed method of assessing the environmental aspects, including a description of the proposed method of assessing the environmental aspects including aspects to be assessed by specialists;	Section 8
	a description of the proposed method of assessing duration and significance;	Section 8
	an indication of the stages at which the competent authority will be consulted;	Section 8
	particulars of the public participation process that be conducted during the environmental impact assessment process; and	Section 8
	a description of the tasks that will be undertaken as part of the environmental impact assessment process;	Section 8
	identify suitable measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored.	Section 8
(j)	An undertaking under oath or affirmation by the EAP in relation to-	
	the correctness of the information provided in the report;	Appendix B
	the inclusion of comments and inputs from stakeholders and interested and affected parties; and	Section 5

Section	Legislated requirements as per the NEMA GNR 326	Relevant Report Section
	any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties;	Section 5
(k)	An undertaking under oath or affirmation by the EAP in relation to the level of agreement between the EAP and interested and affected parties on the plan of study for undertaking the environmental impact assessment;	Appendix B
(l)	Where applicable, any specific information required by the competent authority; and	N/A
(m)	Any other matter required in terms of section 24(4)(a) and (b) of the Act.	N/A

2 PROJECT DESCRIPTION

This section provides a description of the location of the project area and the details associated with each phase of the project. The description encompasses the activities to be undertaken during the construction and operational phases as well as the consideration for access, bulk services and infrastructure in support of the overall operational efficiency of the project.

This section fulfils the requirement stipulated in Appendix 3- 2(d) (ii) of the EIA Regulations:

A description of the activities to be undertaken, including associated structures and infrastructure.

2.1 LOCATION OF THE PROPOSED PROJECT SITE

Roy Point is located approximately 10 km south of Newcastle town along the N11 road, within the Newcastle Local Municipality of the Amajuba District Municipality, KwaZulu-Natal. The Study Area includes the Roy Point Mining Rights Area (MRA) including the farms Roy Point 2959, in which the mining compartments are located, and Tiger Kloof 3333 HS to the south.

The approximate centre point co-ordinates for the study area are:

27°48'39.65"S; 29°57'57.69"E

The locality of the site is depicted in **Figure 2-1** and the project layout plan is depicted in **Figure 2-2**.

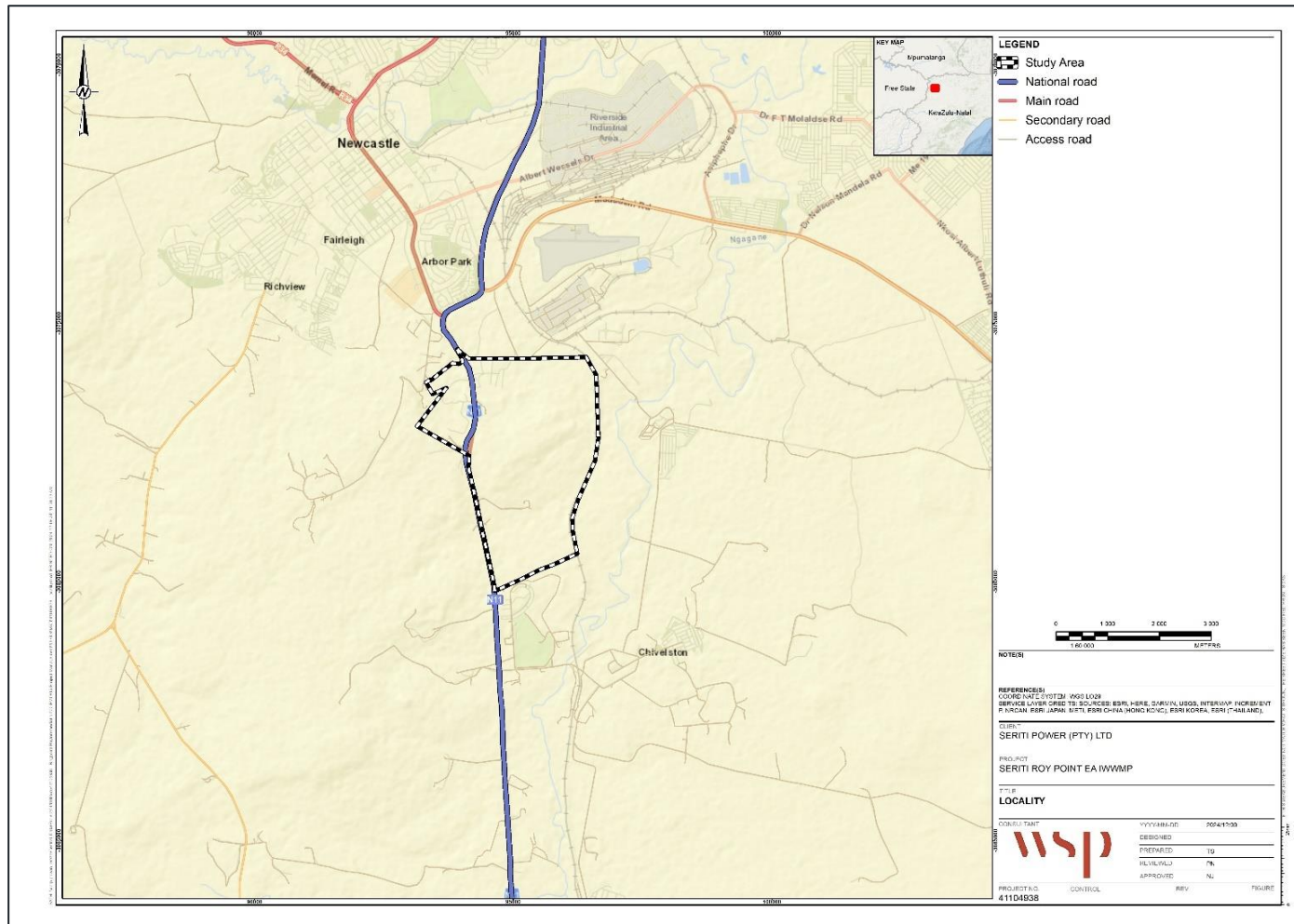


Figure 2-1 - Locality map of the proposed study area

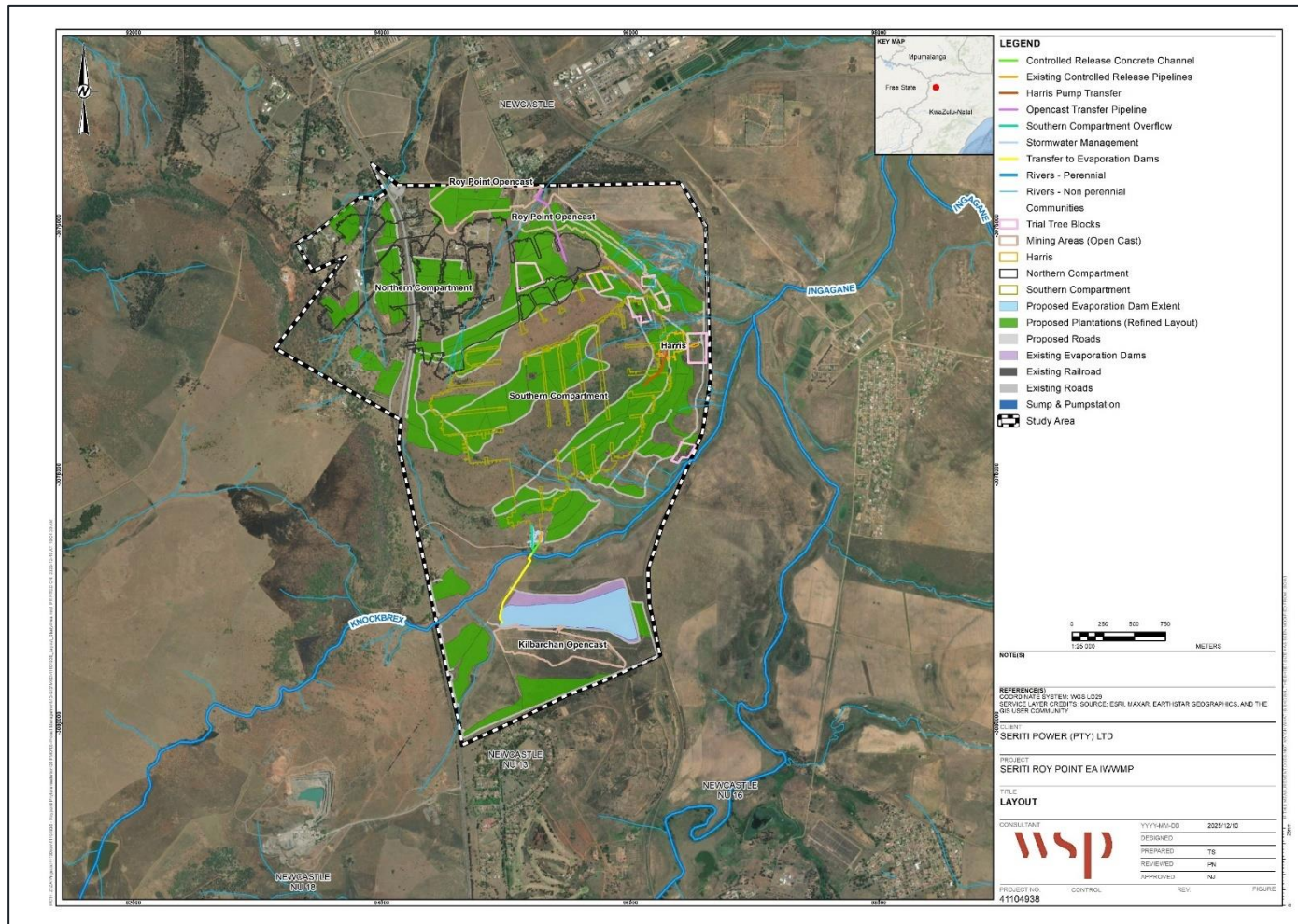


Figure 2-2 - Layout map of the proposed forestry roads and infrastructure

Table 2-1 below indicates the cadastral information of the site and **Table 2-2** includes the co-ordinates of the project infrastructure.

Table 2-1 –Cadastral Information of the Study Area

Details required as per GNR 326	Details
21 Digit Surveyor General Code of each Cadastral Land Parcel	Roy Point N0HS00000000295900007 N0HS00000000295900014 N0HS00000000295900023 N0HS00000000295900026 Tigerkloof N0HS00000000295900015 N0HS00000000333300012
Physical Address and Farm Name	Roy Point 2959, Portion 7 Roy Point 2959, Portion 14 Roy Point 2959, Portion 23 Roy Point 2959, Portion 26 Tigerkloof 3333, Portion 12 Tigerkloof 3333, Portion 15
Land use Zoning	Mining Right Area
Municipality	Amajuba District Municipality

Table 2-2 –Cadastral Information of the Project Study Area

Point	Latitude	Longitude	Area/dimensions
LEGEND ▲ River Crossings ● Study Area Coordinates ● Proposed Evaporation Dam Footprint — River within Plantation Footprint — Controlled Release Concrete Channel — Existing Controlled Release Pipelines — Harris Pump Transfer — Opencast Transfer Pipeline — Southern Compartment Overflow — Stormwater Management — Transfer to Evaporation Dams — Rivers - Perennial — Rivers - Non perennial □ Trial Tree Blocks □ Mining Areas (Open Cast) □ Harris □ Northern Compartment □ Southern Compartment □ Proposed Evaporation Dam Extent □ Proposed Plantations (Refined Layout) □ Proposed Roads □ Existing Evaporation Dams □ Existing Harbours □ Existing Roads □ Sump & Pumpstation □ Trial Passive Treatment Plant □ Study Area Scale: 1:10000 North Arrow: N Scale Bar: 0 100 200 300 400 500 600 700 800 900 1000 Scale: 1:10000 Scale Bar: 0 100 200 300 400 500 600 700 800 900 1000 Scale: 1:10000 Scale Bar: 0 100 200 300 400 500 600 700 800 900 1000 Scale: 1:10000 Scale Bar: 0 100 200 300 400 500 600 700 800 900 1000 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Point	Latitude	Longitude	Area/dimensions
Corner L	29° 56' 42.673" E	27° 48' 11.263" S	
Corner M	29° 57' 3.240" E	27° 47' 47.135" S	
Corner N	29° 56' 53.538" E	27° 47' 51.036" S	
Corner O	29° 56' 48.762" E	27° 47' 43.728" S	
Corner P	29° 57' 7.410" E	27° 47' 31.561" S	
Corner Q	29° 57' 11.836" E	27° 47' 32.102" S	
Corner R	29° 57' 14.620" E	27° 47' 30.429" S	
Existing Evaporation Dam			
E1	29° 57' 49.977" E	27° 49' 18.859" S	31.6 Ha
E2	29° 58' 10.689" E	27° 49' 17.319" S	
E3	29° 58' 26.054" E	27° 49' 13.184" S	
E4	29° 58' 29.718" E	27° 49' 26.173" S	
E5	29° 58' 27.439" E	27° 49' 26.673" S	
E6	29° 58' 18.158" E	27° 49' 23.666" S	
E7	29° 57' 49.595" E	27° 49' 23.943" S	
Plantation Road River Crossings			
R1	29° 57' 59.794" E	27° 48' 44.053" S	N/A
R2	29° 58' 2.603" E	27° 48' 41.093" S	
R3	29° 58' 23.682" E	27° 48' 43.668" S	
R4	29° 58' 31.755" E	27° 48' 46.280" S	
R5	29° 58' 23.135" E	27° 48' 44.233" S	
R6	29° 58' 32.133" E	27° 48' 44.802" S	
R7	29° 58' 34.488" E	27° 48' 41.203" S	
R8	29° 58' 46.340" E	27° 48' 25.588" S	
R9	29° 58' 46.317" E	27° 48' 23.983" S	

Point	Latitude	Longitude	Area/dimensions
R10	29° 57' 35.370" E	27° 48' 12.313" S	
R11	29° 57' 37.648" E	27° 48' 11.411" S	
R12	29° 58' 30.282" E	27° 48' 5.097" S	
R13	29° 58' 30.776" E	27° 48' 6.111" S	
R14	29° 58' 48.662" E	27° 48' 2.044" S	
R15	29° 58' 38.882" E	27° 48' 3.513" S	
R16	29° 58' 14.557" E	27° 48' 12.837" S	
R17	29° 58' 41.167" E	27° 48' 5.032" S	
R18	29° 58' 29.715" E	27° 47' 49.032" S	
R19	29° 58' 30.724" E	27° 47' 49.856" S	
R20	29° 58' 29.544" E	27° 47' 48.893" S	
R21	29° 57' 34.145" E	27° 48' 15.697" S	
R22	29° 57' 34.801" E	27° 48' 12.495" S	
R23	29° 57' 37.895" E	27° 48' 6.285" S	
R24	29° 58' 28.162" E	27° 47' 47.707" S	
R25	29° 58' 23.986" E	27° 47' 44.917" S	
Proposed Internal Roads			
The roads are internal and located within the existing mining right area surrounding the proposed plantations			8.8 Ha

2.2 SITE STATUS

Since cessation of mining activities, water (from rainfall recharge and groundwater ingress) has been accumulating in the underground workings and rehabilitated opencast pits at Roy Point and at the adjacent Kilbarchan opencast operation. The underground workings consist of two sub-compartments, the Northern and the Southern Compartments separated by a natural high point (groundwater divide).

The Northern Compartment has been flooded since 2003 (GCS, 2018). When the water level in the Northern Compartment reaches an elevation of 1219.4 mamsl the water flows over the water divide and into the Southern Compartment (**Figure 2-3**) (WSP, 2023a).

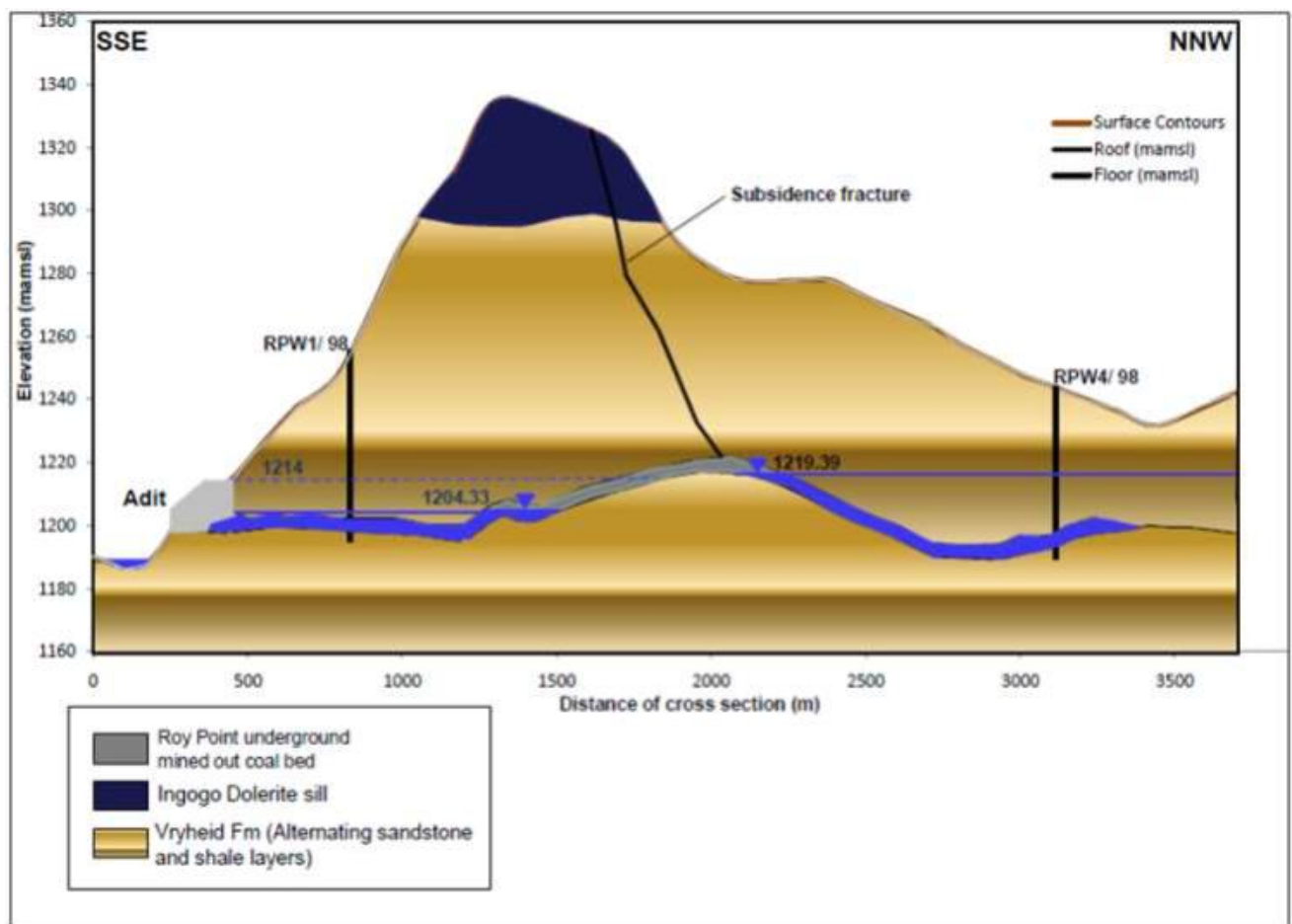


Figure 2-3 - Roy Point Underground Workings Cross-Section (AGES, 2010 – which has been taken from GCS 2013)

Once the Southern Compartment reaches full capacity at 1214 mamsl, decant occurs. The water from the Southern Compartment decants from the underground workings through an overflow pipe into the Knockbex stream located on its downstream point, which is the tributary of the Ingagane River.

The current water management strategy being carried out at Roy Point is based on the previous Roy Point Water Use Licence (WUL Ref 16/2/7/V301/C14, which expired in May 2015). The decant occurs through an overflow pipe at the top of the shaft and controlled release occurs through a series of pipes

with valves installed into the adit. Releases are timed to coincide with high rainfall periods which allows for dilution as it flows into the Knockbrex stream.



Figure 2-4 – Controlled discharge from the main Adit to the Knockbrex, 2023

Seepage is collected from a drain located in the main Adit area. It gravitates to a sump and is returned to the compartment at a rate of 25 m³/h (**Figure 2-5**).



Figure 2-5 – Seepage collection and sump at the main adit, April 2023

There is no apparent direct connection between the underground compartment and the rehabilitated opencast pits, but it is assumed that seepage may occur through the barrier pillar. During a site visit in 2023, groundwater was observed daylighting adjacent to the north-west backfilled open pit in the vicinity of an artesian borehole (BHD4(3)). A pump has been installed at BHD4(3) to manage the decant by pumping it into the nearby northern compartment mine workings and seepage was not observed at either borehole in April 2024. A solar borehole pump is installed (1 x 0.75 kW) with a pump rate of 5 m³/h (120 m³/d) and 25m head (**Figure 2-6**).



Figure 2-6 – Photo of borehole BHR4 (left) and borehole BHR4 installed with a pump (right)

The Harris compartment was not backfilled or sealed and the adit opening has caved in. According to J&W (2016) as cited by GCS (2020), the Harris Compartment and Roy Point underground compartment have no direct connection between the Harris and Southern compartments. However, there is seepage from the southern compartment into the Harris Compartment. When not managed, decant occurs through the collapsed Harris Adit into the neighbouring Knockbrex Stream and subsequently into the Ingagane River (Figure 2-7). Despite this being an ownerless mine, Seriti have integrated this compartment into the long-term water management strategy. Boreholes have been drilled into the Harris compartment to pump water out into the southern compartment (WSP, 2023a) as conceptualised in **Figure 2-7**.



Figure 2-7 – Harris Adit, April 2023

2.3 LONG TERM WATER MANAGEMENT STRATEGY

The proposed long-term water management strategy, as indicated in **Figure 2-8**, includes the following:

- Managed decant from the Southern Compartment.
- The establishment of forestry areas to intercept rainfall and shallow groundwater in order to reduce ingress of water into the mine workings and, in limited cases intercept seepage from opencast areas.
- Lining of two compartments of the existing evaporation dam for storage and evaporation of excess water.

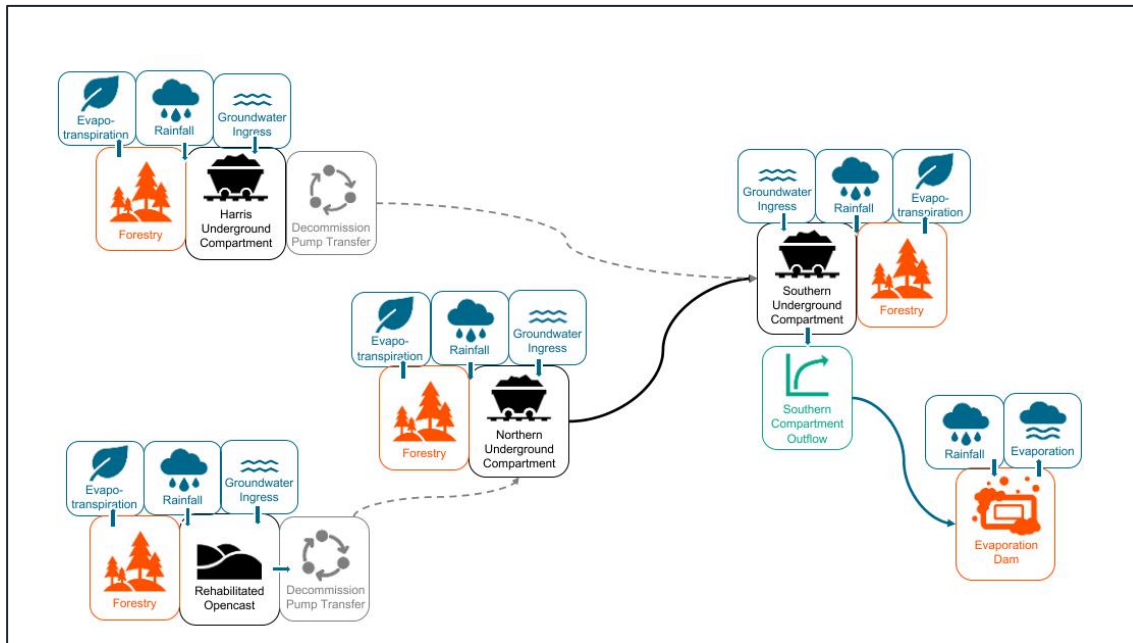


Figure 2-8 – Roy Point Long Term Water Management Strategy

2.3.1 FORESTRY

The primary aspect of the water management strategy is to establish pine plantations and to increase woody vegetation in certain areas to reduce the ingress of water into the mine workings. This is achieved through evapotranspiration which is the combined processes that move water from the earth's surface into the atmosphere. Evapotranspiration is a combination of evaporation and transpiration. Evaporation is the transition of water from a liquid to a vapour directly from soil, canopies, and water bodies into the atmosphere.

The main species earmarked for use during afforestation (*Pinus elliottii*) can withstand extended periods of waterlogging. For this reason, soft plinthic subsoils were not seen as an impediment as *P. elliottii* roots will easily colonize large parts of these horizons (personal observations by the senior author in many locations of South African plantations). Permanently waterlogged horizons (i.e. gleyed horizons) may pose some impediment to rooting, although it is likely that pine roots may lower the water table in some of these soils once they are afforested, thereby rendering the upper parts of the G horizon accessible to new rooting (Revision of forestry feasibility study and at Roy Point Mine, Verdure, 2025).

2.3.1.1 Alternatives Considered for the Forestry Layout

The original proposed layout for the forestry plantation was significantly altered to accommodate for natural features such as wetlands resulting in three (3) layout alternatives for the forestry area between May 2024 and May 2025 (**Table 2-3**). The forestry areas were altered significantly to comply with

wetland boundaries, and to simplify the site plan three groups of compartments³ (of forestry not the compartments of the evaporation dam within the context of the Verdure, 2025 forestry feasibility study) were removed, groups E, L and V. These compartments were either removed entirely or reclassified into a nearby group of compartments. Two other groups were very significantly altered, the compartments of groups S and K, which overlapped significantly with wetland buffer zones in the southern and eastern sides of the site. Only minor changes were made to compartments in groups C, N and W. Note that new compartments may have no overlap with previous compartments sharing the same number (i.e. S22) as compartment numbering was re-ordered.

Figure 2-9 to Figure 2-12 show changes in key areas of the site where compartments were changed to comply with wetland buffer zones. Old and new compartments are shown overlaid, along with the 41m buffer zones designated for channelled valley bottom and watercourse wetlands, and the 39m buffers designated for seep-type wetlands.

Figure 2-9 shows changes in the south of the site near Kilbarchan, **Figure 2-10** and **Figure 2-11** show the changes made to the eastern side of the site, on the lower slopes where seep wetlands occur, and **Figure 2-12** shows minor changes in the north and northwest portions of the site. On all maps old compartments are shown in solid blue, new compartments shown in hashed black and overlaid. Channelled valley bottom and watercourse wetland buffers are shown in semi-transparent red and seep wetland buffer zones are shown in semi-transparent orange. Note that channelled valley bottom and seep wetland buffer zones frequently overlap and are overlaid on the old compartment layer to show where changes were necessary to comply with the wetland buffer zones (Revision of forestry feasibility study and at Roy Point Mine, Verdure, 2025).

Table 2-3 - Change in forested land and in the estimated rates of evapotranspiration and recharge into mined compartments for three afforestation scenarios.

Afforestation scenario	Original Plan – May 2024	Adjusted Plan – Sept 2024	Revised Plan – May 2025
Comments on afforestation plan and area under trees	Follow brief to implement maximum afforestation	Remove sinkhole compartments and valuable maize fields	Pull further back from wetlands and wetland buffer zones, excise low productivity compartments in the south
Plantations on mined land (ha)	268	269	234
Plantations outside mined areas (ha)	163	122	74

³ The Verdure, 2025 report describes “compartments of forestry” as the sections of forestry that were adjusted. These “compartments are not referring to the evaporation dam compartments

Afforestation scenario	Original Plan – May 2024	Adjusted Plan – Sept 2024	Revised Plan – May 2025
Total plantation area (ha)	431	390	308
Estimated recharge reduction by trees planted on mined areas only (m ³ / a)	236 137	236 866	208 260
Recharge reduction by trees planted on mined areas only, expressed as m ³ per average day	647	649	571

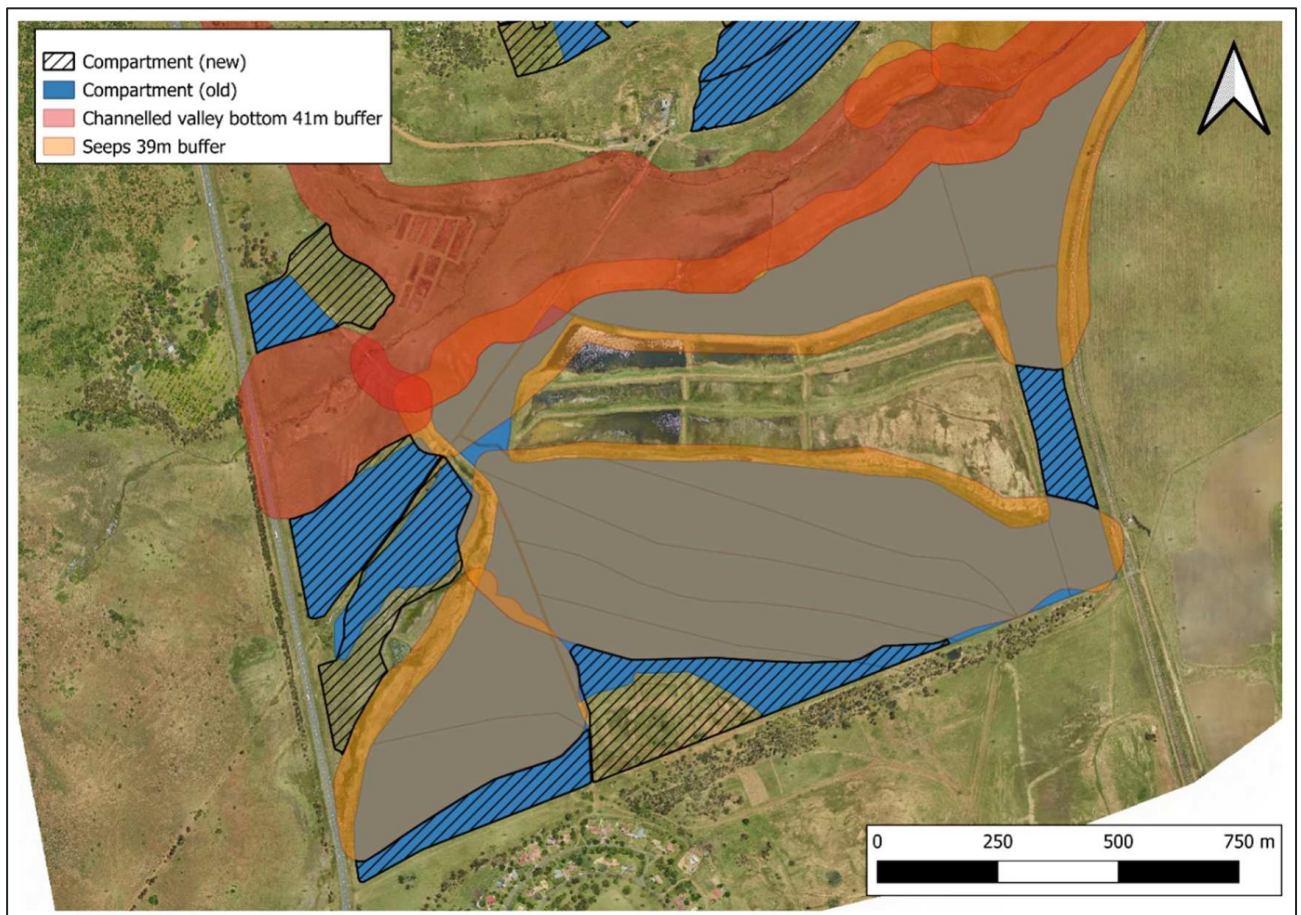


Figure 2-9 – Changes to plantation compartments near Kilbarchan, showing old and new compartments with channelled valley bottom and seep wetland buffer zones (Verdure, 2025).

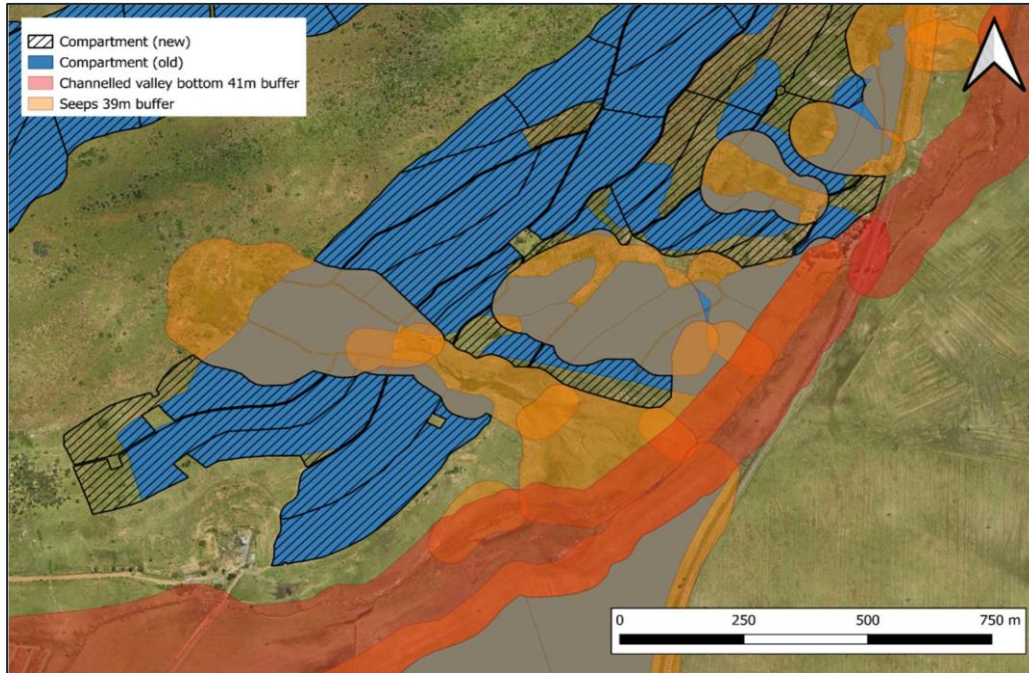


Figure 2-10 - Changes to plantation compartments along the southeastern slopes, showing old and new compartments with channelled valley bottom and seep wetland buffer zones (Verdure, 2025).

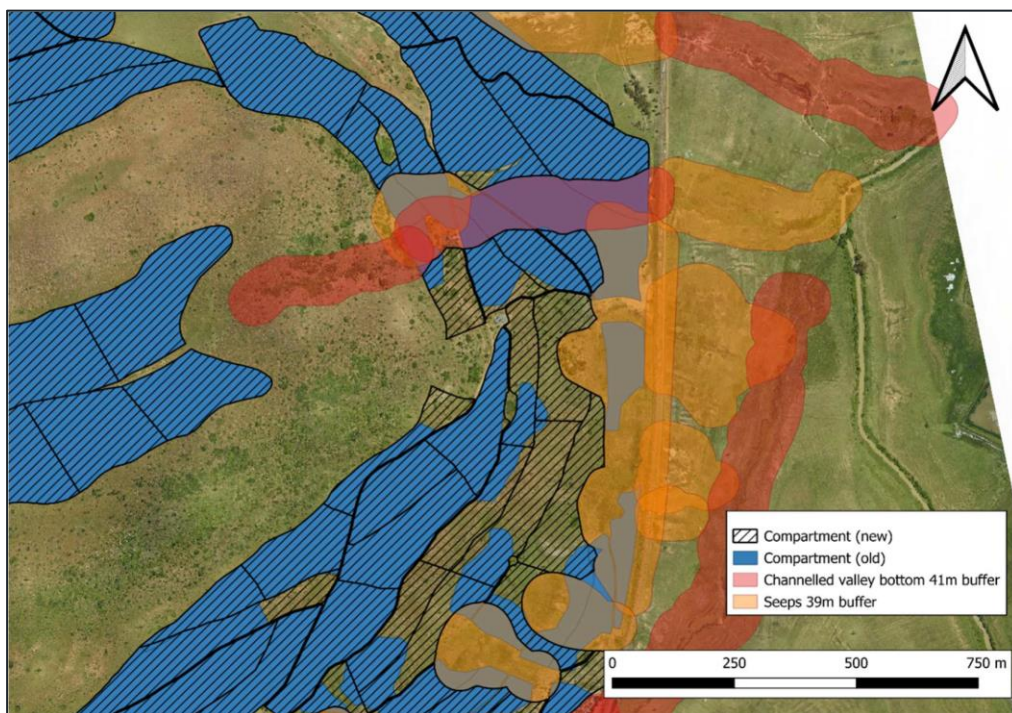


Figure 2-11 - Changes to plantation compartments along the eastern-central slopes, showing old and new compartments with channelled valley bottom and seep wetland buffer zones (Verdure, 2025).

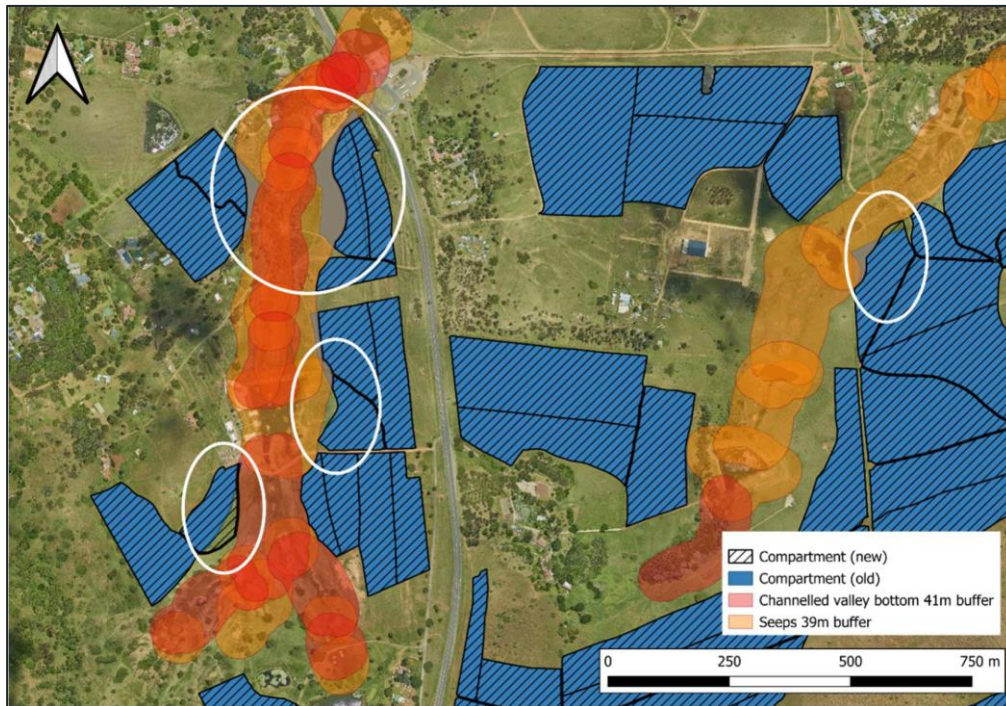


Figure 2-12 - Changes to plantation compartments in the north and west, showing old and new compartments with channelled valley bottom and seep wetland buffer zones. Areas where changes occurred are indicated with white ellipses (Verdure, 2025).

2.3.2 EVAPORATION DAM

The second component of the water management strategy is to optimize the existing evaporation dam structure for the evaporation of the ad hoc excess mine water emanating from the Southern Compartment during seasonal fluctuations in the mine water levels.

A cluster of nine compartments make up the existing evaporation dam as depicted in **Figure 2-13** (the figure refers to the evaporation dam's nine compartments as evap pond 1-9) . These compartments are referred to as that vary in shape and size were constructed to function with a cascading flow regime from the first containment dam sequentially overflowing successively through all the nine dams. These dams form part of the existing dirty water footprint at Roy Point and are depicted in **Figure 2-13**. Currently, water can be transferred via a gravity feed line (crossing the Knockbrex stream) from the Southern Compartment as a control mechanism to prevent decant water from entering the Knockbrex/Ingagane confluence.



Figure 2-13 – Existing evaporation dam indicating the nine compartments (evap pond 1-9 are the nine compartments of the existing evaporation dam).

Six of the nine compartments of the existing evaporation dam as indicated in the **Figure 2-13** will be rehabilitated into an evaporation dam with two compartments as indicated in **Figure 2-14**. This is being done to increase the surface area of each of the compartments to try maximizing the evaporation rate.

The evaporation dam will serve as an additional control measure in the event of the underground workings overflowing during periods when controlled release into the catchment is not feasible. The compartments will have different volumes and surface areas as indicated in **Table 2-4**.

Table 2-4 – Proposed Evaporation Dam Compartments

Description of blue area on map below	Surface Area (m ²)	Volume (m ³)
Compartment 1	113 253.083	135 738.308
Compartment 2	53 295.568	63 876.851
Total	166 548.651	199 615.159

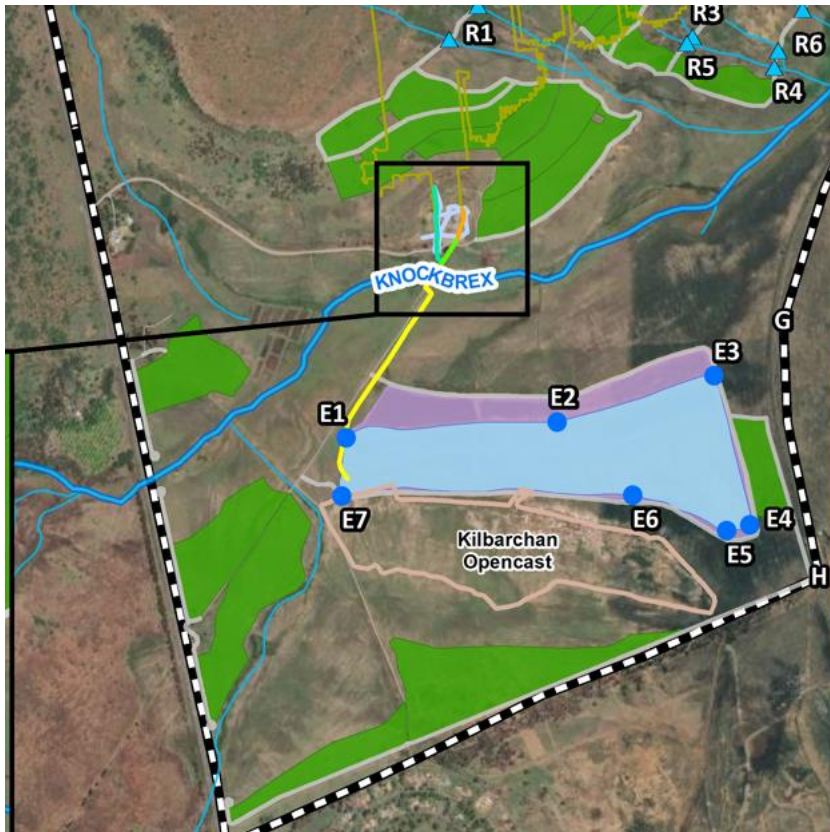


Figure 2-14 – Evaporation dam showing refurbished compartments 1 (blue) and 2 (pink) and replacement pipeline (yellow)

As per the conceptual design report (LNU Consulting Engineers and Project Managers, 2025), the system will be supplied through two 200mm diameter HDPE pipes that are gravity fed pipeline originating from the underground compartment. The pipeline exists the Southern Compartment then crosses the Knockbex Stream over a new pipe bridge crossing and enters the southwestern corner of the Southern Compartment.

2.3.2.1 Preferred design for the remediation and lining of the evaporation dam

The remediation and lining measures for the Evaporation Dam are as follows:

- The design will consist of re-shaping the existing earth-fill embankment dams featuring an upstream slope of 1:3 (vertical) and a downstream slope of 1:3 (V), with a crest width of 4 metres.
- The area will be levelled and shaped according to design grades.
- In-situ material will be ripped and recompacted to achieve 95% of the standard Proctor density at Maximum Dry Density (MDD).
- Beneath the base preparation layer, a subsoil drainage system will be installed, comprising 110 mm to 160 mm diameter slotted HDPE drainage pipes, placed in 19 mm stone and wrapped in a minimum of 230 g/m² geotextile. This system will facilitate the management of any subsurface seepage water and will include a leakage monitoring system beneath the liner.
- A 300 mm layer of suitable clay material will be compacted in 150 mm layers to reach 98% Proctor Density at optimum to optimum +2%. These layers will be validated through test work approved by the Engineer to meet a permeability of 1×10^{-8} m/s.

- A layer of 1,5 mm HDPE geomembrane liner, will be installed in accordance with SANS 1526 (2015).
- After the liner installation, an independent Electric Leak Location (ELL) survey will be conducted following ASTM D8625 test methods to ensure the quality of the installation.
- To anchor the liner, a 600 mm wide by 500 mm deep anchor trench will be constructed, which will then be backfilled with soilcrete.
- A leak detection system will be installed beneath the HDPE geomembrane liners, where water will drain in each of the evaporation dam, which will drain to a manhole on the northern side of the evaporation dam.
- A subsurface drainage system will be installed beneath the HDPE geomembrane liner to prevent groundwater build-up beneath the evaporation dam. This system will channel excess water to a sump, which will then discharge into a manhole on the northern side of the evaporation dam. The manhole will have an outlet that allows the water to drain into the clean water system. The subsurface drainage system will serve as a secondary leak detection mechanism. By testing the water, it can be determined if contamination has occurred. If the water is contaminated, it indicates a failure in the second HDPE liner, necessitating the replacement of the liner.

2.3.3 PROPOSED INTERNAL ROAD NETWORK

The road network has been revised since the original layout due to the removal of roads that were made redundant due to changes in compartment boundaries on the eastern and southern portions of the site. Approximately 19 km of existing roads are identified to be upgraded to main access roads which will be a minimum width of 4m to carry forestry vehicles. The construction activities include widening/cutting with an excavator where needed, gravel where needed, grading to the correct camber, watering, and compaction.

A total of 63 km of new roads needs to be built. The road standard is a minimum width of 3 m, and it is used for access to specific compartments. The construction activities include cutting (to 3 m width) with an excavator where needed, placement of gravel where needed, grading to the correct camber, watering, and compaction of the soil surface.

Grading of existing roads total approximately 43.4km and it includes 19.1 km on private land. The construction activity includes grading, watering, and compaction to a minimum width of 3 m.

Approximately 9.4 km of the existing internal roads, between compartments, were identified where a full grass cover is present on flat terrain and where grading can be replaced with the cutting of grass with a tractor-driven mower/slasher. Surface drains are planned for these roads to prevent erosion and to improve drainage in heavy rain conditions.

The road network has been central in the planning of an integrated fire management plan for the study area. The road network not only provides access but also acts as a network of internal firebreaks and tracer belts from which prescribed fires can be started in the pre-fire season. During times of wildfire, the road system also acts as continuous belts from which counter-fires can be started during active firefighting. On the boundaries of the Roy Point area, provision has been made for firebreaks as stipulated by law.

Based on the above, no alternatives were considered for the proposed road network.

2.3.4 OTHER INFRASTRUCTURE

Surface drains and culverts will be constructed across the study area. A total number of 246 surface drains on slopes < 5 % and 19 on slopes 5-10 % are planned on new and existing roads. The spacing between the surface drains is 600 m on slopes 5-10 % and 750 m on slopes < 5 %.

Culverts were identified on 18 stream crossings. The majority of the 18 stream crossings are open drainage lines, which will only carry water in high rainfall conditions. Two additional sets of culverts are planned on the 200 m sections of road with slopes of > 10%. This is more than the minimum spacing standard of one culvert per 300 m road length.

2.3.5 IMPLEMENTATION SCHEDULE

A high-level overview of the most important timelines and action steps for the successful implementation and management of the water management strategy at Roy Point is provided in the table below.

Table 2-5 – Implementation Schedule

Period	Activity	Description
Year 0 to 1	Licensing and permits	Applications for environmental authorisation, water use license and forestry permit.
Year 0 to 1	Negotiations with surface right holders	Conclude agreements with surface right owners.
Year 0 to 1	Source silviculture contractors	Consider the use of local contractors or Normandien's silvicultural section to drive the afforestation process.
Year 0 to 1	Source civil engineering contractors	Consider the use of local contractors capable of executing the Evaporation Dam construction activities.
Year 0 to 2	Discuss preliminary agreement with Normandien Tekwani sawmills	Discuss afforestation plan and harvestable volumes projected for Roy Point area with the aim of long-term timber supply agreements
Year 0 to 2	Fire Protection Association membership	Become an active member of the regional Fire Protection Association with representation either in Newcastle or Normandien. Purchase the necessary firefighting equipment and train staff.
Year 0 to 8	Controlled releases of excess mine water	Manage the water levels in the Southern Compartment as per the controlled release protocols and license conditions.
Year 1 to 2	Fire management agreements	Draw up fire management protocols with Neighbours (work through Regional Fire Protection Agency).

Period	Activity	Description
Year 1 to 2	Evaporation Dam and supporting infrastructure construction	Construct the Evaporation Dam and supporting infrastructure as per the detailed designs and license conditions.
Year 1 to 4	Access road construction	Construct new access roads and ensure that access routes are in good condition with proper drainage
Year 1 to 4	Planting	Rapid rate of afforestation to maximise evapotranspiration and canopy closure as soon as possible.
Year 2 to 6	Weed control	Intensive weed control to ensure high survival and rapid initial growth to dominate competing vegetation on all sites.
Year 5 to 16	Secondary roads construction	Construct secondary roads in plantation areas about to be thinned.
Year 7 to 12	Pruning to >3 m height	Fire safety, access for thinning and improvement of wood quality
Year 10	Evaporation Dam maintenance	Clean out accumulated material from the settling pond in Evaporation Dam Compartment 1 and conduct maintenance and repairs of the facility as needed.
Year 12 to 17	Thinning operations	To maintain healthy levels of competition and increase diameter growth on individual trees for better % recovery in mill
Year 17 to 23	Clear felling of selected compartments	Optimum age to maintain maximum productivity and evapotranspiration
Year 18 to 26	Second thinning of selected compartments	Achieve phased distribution of uneven age classes for improved evapotranspiration and fire safety
Year 20	Evaporation Dam maintenance	Clean out accumulated material from the settling pond in Evaporation Dam Compartment 1 and conduct maintenance and repairs of the facility as needed.
Year 26 to 33	Clear felling on long rotation compartments	Regenerate cycle
Year 33 onwards	Forestry activities and management of the Evaporation Dam	Forestry operations and ongoing management and maintenance of the Evaporation Dam.

3 NEED AND DESIRABILITY OF THE PROJECT

The Department of Environmental Affairs and Development Planning (DEA&DP) Guideline (2013) states that the essential aim of need and desirability is to determine the suitability (i.e., is the activity proposed in the right location for the suggested land-use/activity) and timing (i.e., is it the right time to develop a given activity) of the development. Therefore, need and desirability addresses whether the development is being proposed at the right time and in the right place. Similarly, the 'Best Practicable Environmental Option' (BPEO) as defined in NEMA is *"the option that provides the most benefit and causes the least damage to the environment as a whole, at a cost acceptable to society, in the long term as well as in the short term."*

Post-closure impacts associated with mining operations often include significant impacts on water resources. The Department of Water and Sanitation (DWS), therefore, has a justifiable interest in the water management aspects related to mine closure and will generally include management and mitigation measures associated with rehabilitation, decommissioning, and closure of mining operations in the Water Use Licenses (WUL) issued to mines. Furthermore, recognising the potential impact of mining on water, the DWS issued a series of Best Practice Guidelines (BPG) to assist with aspects of the water management hierarchy. This guideline series includes BPG5: Water Management Aspects for Mine Closure (2008). The principles contained in the BPG5 that have been considered in the formulation of the options analysis study include the following:

Management measures at closure should primarily be passive, with minimal long-term maintenance and operating costs.

- The final landform must be sustainable, free draining, minimise erosion, and avoid ponding.
- Land use plan is directly interlinked with water management issues as water is required to support the intended land use, and the land use itself may impact the water resource.
- The biodiversity plan will address issues interrelated with the mine water management plan, particularly regarding the environmental water balance and the effects that mining may have on it.

As detailed in Section 2 of this report (Project Description), Roy Point Colliery is currently under care and maintenance. Water has been accumulating in the underground workings of the mine, and a long-term water management strategy is required to effectively manage the water on the site. At present, the mine's water is managed by controlled release of the excess water from the Southern Compartment via a valve system. The controlled discharge into the Knockbex River takes place when the Ingagane River flow is at its peak.

Seriti proposes an interim water management strategy which includes the continued controlled release and construction activities and the long-term strategy which includes forestry and evaporation. Forestry is identified by Seriti as being the key water management measure to reduce recharge to the mining compartments. WSP, as part of the Water Balance Assessment (December 2025) conducted an assessment to determine the recharge to the system prior to afforestation and after afforestation.

WSP made use of the evapotranspiration rates and the plantation areas as specified by Verdure, 2024 and Verdure, 2025. A pre-forestry total average recharge to the system of 1 376 m³/d was calculated for the entire mine. This has been modelled to be reduced by an average of 48% after the implementation of forestry.

Regarding, excess water management, the average volume of excess water from the Southern compartment that will require to be managed pre-forestry is 2 060 m³/d and post the implementation of forestry there will be no need for release based on all climate scenarios modelled.

Forestry is expected to decrease the current levels of water in the opencast workings thereby preventing the need to pump any water to the Northern Compartment. Forestry is also expected to manage the water in the Harris Adit workings such that no water will be required to be pumped from Harris Adit to the Southern compartment. The OC and Harris Adit pumping will still be required during the interim phase.

The Water Balance Assessment (WSP, 2025) also confirmed that with the implementation of forestry there will be no impact to the surface water receptor since the releases from the Southern Compartment (overflow) will be sent to the evaporation dam and there will be no decant from the opencast areas or from Harris Adit.

4 GOVERNANCE FRAMEWORK

4.1 APPLICABLE LEGISLATION

The South African regulatory framework establishes well-defined requirements and standards for environmental and social management of industrial and civil infrastructure developments. Different authorities at both national and regional levels carry out environmental protection functions. The applicable national legislation is explained in **Table 4-1** below.

Table 4-1 – Applicable National Legislation⁴

Legislation	Description of Legislation and Applicability
The Constitution of South Africa (No. 108 of 1996)	The Constitution cannot manage environmental resources as a stand-alone piece of legislation hence additional legislation has been promulgated in order to manage the various spheres of both the social and natural environment. Each promulgated Act and associated Regulations are designed to focus on various industries or components of the environment to ensure that the objectives of the Constitution are effectively implemented and upheld in an on-going basis throughout the country. In terms of Section 7, a positive obligation is placed on the State to give effect to the environmental rights. Applicability: An environmental permitting process will be undertaken to identify and determine the potential impacts associated with the proposed project. The recommended mitigation measures will aim to adequately address the potential impacts and are managed to acceptable levels to support the rights as enshrined in the Constitution.
National Environmental Management Act (No. 107 of 1998) (NEMA)	In terms of Section 24(2) of the NEMA, the Minister may identify activities which may not commence without prior authorisation. The Minister thus published GNR 327 (Listing Notice 1), 325 (Listing Notice 2) and 324 (Listing Notice 3), as amended, listing activities that may not commence prior to authorisation. The regulations outlining the procedures required for authorisation are published in the EIA Regulations. Listing Notice 1 identifies activities that require a BA process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity. Listing Notice 2 identifies activities that require an S&EIR process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity. Listing Notice 3 identifies activities within specific areas that require a BA process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity. Applicability: WSP undertook a legal review of the listed activities according to the proposed project description to conclude that the activities listed in this section are considered applicable to the development: A S&EIR process must be followed.

⁴ It should be noted that all dimensions outlined in relation to Listing Notice 1, 2 and 3 are provisional and are subject to final design.

Legislation	Description of Legislation and Applicability
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEM:BA)	The National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEM:BA) was promulgated in June 2004 within the framework of the NEMA to provide for the management and conservation of national biodiversity. The NEM:BA's primary aims are for the protection of species and ecosystems that warrant national protection, the sustainable use of indigenous biological resources, the fair and equitable sharing of benefits arising from bioprospecting involving indigenous biological resources. In addition, the NEM:BA provides for the establishment and functions of a South African National Biodiversity Institute (SANBI). SANBI was established by the NEM:BA with the primary purpose of reporting on the status of the country's biodiversity and conservation status of all listed threatened or protected species and ecosystems. CBAs are areas of high biodiversity value which are usually at risk of being lost and usually identified as important in meeting biodiversity targets, except for Critically Endangered Ecosystems or Critical Linkages. CBAs in the Province can be divided into two sub-categories: ■ Irreplaceable (parts of the site are within this sub-category), and ■ Optimal (northern parts of the site are within this sub-category). The Threatened or Protected Species Regulations and lists (2007 & 2017 (marine)), Alien and Invasive Species Regulations and lists (2020) published under the NEM:BA will be applicable if there are any protected species to be removed as part of the project. Applicability: According to the DFFE Screening Report, the development falls within a CBA Optimal area. This is defined as areas that are considered critical for meeting biodiversity targets and thresholds, and which requires to ensue persistence of viable populations of species and functional ecosystems. Based on the desktop assessment and initial site visit, the site has already been subjected to disturbance and is transformed. It is noted however, that based on field observations and a study of aerial imagery, the KZNBSF delineations do not account for certain localised sites that have been modified. Several areas that are either highly disturbed or no longer contain natural habitat (transformed), are currently designated CBA Optimal, including <i>inter alia</i>, alien tree stands, portions of the former opencast pits (now rehabilitated grasslands), cultivated fields, miniature golf course, and various sites of built infrastructure (e.g., wedding and function venues and agricultural buildings). A terrestrial biodiversity impact assessment has been conducted to confirm the vegetation status of the site and if any protected species are within the project area. Permits for removal or destruction of nationally protected plant species can only be applied for once these species have been identified (permits to be applied for prior to construction phase).
The Mineral and Petroleum Resources Development Act 28 of 2002 (MPRDA)	The Mineral and Petroleum Resources Development Act of 2002 (MPRDA) came into effect in 2004 and establishes the state as the custodian of the nation's mineral and petroleum reserves. The legislative environmental framework supporting the MPRDA creates a licensing regime allowing for mineral and petroleum exploitation subject to national priorities, regulations and standards.

Legislation	Description of Legislation and Applicability
	Reconnaissance, exploration, and production rights are only granted upon the approval of relevant environmental impact assessment and cost analysis documentation. The proposed activities is located at the Roy Point Colliery site therefore the application will be reviewed by the DMPR.
The National Heritage Resources Act (No. 25 of 1999) (NHRA)	The National Heritage Resource Act (Act No. 25 of 1999) (NHRA) serves to protect national and provincial heritage resources across South Africa. The NHRA provides for the protection of all archaeological and palaeontological sites, the conservation and care of cemeteries and graves by the South African Heritage Resources Agency (SAHRA), and lists activities that require any person who intends to undertake to notify the responsible heritage resources agency and furnish details regarding the location, nature, and extent of the proposed development. Part 2 of the NHRA details specific activities that require a Heritage Impact Assessment (HIA) that will need to be approved by SAHRA. Parts of Section 35, 36 and 38 apply to the proposed project, principally: Section– 35 (4) - No person may, without a permit issued by the responsible heritage resources authority- ■ destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite; ■ destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite. ■ Section 38 (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as- ■ any development or other activity which will change the character of a site— (i) exceeding 5 000 m² in extent, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development. In terms of Section 38(8), approval from the heritage authority is not required if an evaluation of the impact of such development on heritage resources is required in terms of any other legislation (such as NEMA), provided that the consenting authority ensures that the evaluation of impacts fulfils the requirements of the relevant heritage resources authority in terms of Section 38(3) and any comments and recommendations of the relevant resources authority with regard to such development have been taken into account prior to the granting of the consent. However, should heritage resources of significance be affected by the proposed project, a permit is required to be obtained prior to disturbing or destroying such resources as per the requirements of Section 48 of the NHRA, and the SAHRA Permit Regulations (GN R668). Applicability: The proposed area and associated structures and infrastructure exceed 5000m² and therefore triggers the requirement for a HIA to be undertaken. The DFFE Screening Tool considers the site to be very high in sensitivity. This is due to the northern portion of the site being located within 2km of a Grade II Heritage Site. The remaining extent of the site is low in sensitivity. The outcome of the heritage assessments will determine if any permits are required for the disturbance or destruction of any heritage resources.

Legislation	Description of Legislation and Applicability
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (NEM:WA)	A list of 'Category A', and 'Category B' and subsequently 'Category C' waste management activities were first published, in GN 718 of 3 July 2009. These were amended, with the latest amendment being GN 1094 at the time of submission of this application. Category A and B activities require a Waste Management Licence in terms of section 20(b) of NEMWA, whereas Category C activities require that the person conducting these activities complies with the relevant requirements or standards as stated in GN. R.921, as amended. A number of regulations and standards regulating waste management have been published under NEMWA and updated to Government Gazette 46602 dated 24 June 2022 including: ■ List of waste management activities that have, or are likely to have, a detrimental effect on the environment, 2013 (as amended) ■ National Waste Management Strategy, 2020 ■ Waste Classification & Management Regulations, 2013 ■ National Norms & Standards for the Assessment of Waste for Landfill Disposal, 2013 ■ National Norms & Standards for Disposal of Waste to Landfill, 2013 ■ National Norms and Standards for the Remediation of Contaminated Land and Soil Quality, 2014 Applicability: Based on the details of the project, there are no applicable waste related activities. The temporary storage of excavated materials may require a registration for the storage of waste under the Norms and Standards and will be applied for separately.
National Environmental Management: Air Quality Act 39 of 2004 (NEM:AQA)	NEM:AQA provides for the protection of the environment by regulating air quality in order to prevent air pollution. ■ Sections 21, 22, 22A - Listing of activities in Atmospheric Emission Licensing. ■ Sections 23-25 – Controlled emitters ■ Section 32 – Control of Dust ■ Section 34 – Control of Noise ■ Section 35 – Control of offensive odours Several regulations and standards regulating air quality have been published under NEMAQA. including: ■ National Ambient Air Quality Standards, 2009 ■ National Ambient Air Quality Standard for Particulate Matter of Aerodynamic Diameter less than 2.5-micron metre (PM2.5), 2012 ■ Declaration of a Small Boiler as a Controlled Emitter and Establishment of Emission Standards, 2013 ■ National Dust Control Regulations, 2013 ■ Listed Activities and Associated Minimum Emission Standards 2013 (amended) ■ Regulations regarding Air Dispersion Modelling, 2014 National Atmospheric Emission Reporting Regulations, 2015 ■ National Greenhouse Gas Emissions Reporting Regulations, 2016 (amended) ■ Declaration of greenhouse gases as priority air pollutants, 2017

Legislation	Description of Legislation and Applicability
	National Pollution Prevention Plans Regulations, 2017 (amended) (including the Regulations prescribing the format of the Atmospheric Impact Report (2013). Applicability: The project does not trigger the requirement for an Air Emissions License (AEL) however the above-mentioned sections of the NEM:AQA and the associated regulations will be considered during the EIA process. Short term impacts to the air quality during construction will be further assessed in the EIA phase of the S&EIR process.
National Protected Area Expansion Strategy, 2010	The National Protected Area Expansion Strategy 2010 (NPAES) areas were identified through a systematic biodiversity planning process. They present the best opportunities for meeting the ecosystem-specific protected area targets set in the NPAES and were designed with strong emphasis on climate change resilience and requirements for protecting freshwater ecosystems. These areas should not be seen as future boundaries of protected areas, as in many cases only a portion of a particular focus area would be required to meet the protected area targets set in the NPAES. They are also not a replacement for fine scale planning which may identify a range of different priority sites based on local requirements, constraints and opportunities (NPAES, 2010). According to the NPAES (2016) dataset, the project area does not fall within a Priority Focus Area.
The National Water Act (No. 36 of 1998) (NWA)	The purpose of the National Water Act (No. 36 of 1998) (NWA) is to provide a framework for the equitable allocation and sustainable management of water resources. Both surface and groundwater sources are national resources, which cannot be owned by any individual, and rights to which are not automatically coupled to land rights, but for which prospective users must apply for authorisation and register as users. The NWA also provides for measures to prevent, control and remedy the pollution of surface and groundwater sources. The Act aims to regulate the use of water and activities (as defined in Part 4, Section 21), which may impact on water resources through the categorisation of 'listed water uses.' Defined water-use activities require the approval of DWS in the form of a General Authorisation (GA) or Water Use Licence (WUL) authorisation. Applicability: Based on the proposed plantation, river crossings, evaporation dam and the discharge of water into the Knockbrex River, a WUL is required.
National Forest Act (No.84 of 1998)	The National Forests Act 84 of 1998 (NFA) is the primary South African legislation governing the sustainable management, protection, and use of forests. It promotes community forestry, regulates state forest restructuring, protects specific trees and natural forests, and establishes the National Forests Advisory Council to advise on policy. Applicability: This Act guides the establishment and use of forests therefore it will be further considered in this S&EIR process.

Legislation	Description of Legislation and Applicability
National Veld and Forest Fire Act (No. 101 of 1998)	The purpose of the Act is to prevent and combat veld, forest and mountain fires throughout the Republic. It makes provision for compliance with environmental requirements as well as for the management of risk to life and property It set out minimum enforceable standards which must be achieved by all landowners e.g. firebreaks & preparedness. It provides for a variety of institutions, methods and practices to achieve its purpose.(e.g. FPAs). Applicability: This Act is considered as there will be the risk of fire at newly established forestry at Roy Point. The requirements and guidance of this Act is crucial in preventing and managing fires.
Mine Health and Safety Act (No. 29 of 1996)	The Mine Health and Safety Act (MHSA), South Africa's primary law (Act 29 of 1996), aims to protect the health and safety of everyone in mines by establishing a strong safety culture, defining employer/employee duties for hazard control, providing for right to refuse dangerous work, and creating tripartite bodies for oversight, focusing on results rather than strict prescriptions, with ongoing amendments to address new risks. It mandates health & safety policies, training, risk assessment, and health surveillance, enforced by the Mine Health & Safety Inspectorate. Applicability: Despite the mine Roy Point Mine being under care and maintenance, this Act still applies and is relevant to the safety of anyone that will enter the site for this project.
Agricultural Pests Act (No. 36 of 1983)	This Act provides for measures by which agricultural pests may be prevented and combated; and for matters connected therewith. Applicability: This Act will be considered as it provides for the control and prevention of pests at the plantation at Roy Point.
Civil Aviation Act (No. 13 of 2009)	Civil aviation in South Africa is governed by the Civil Aviation Act (Act 13 of 2009). This Act provides for the establishment of a stand-alone authority mandated with controlling, promoting, regulating, supporting, developing, enforcing and continuously improving levels of safety and security throughout the civil aviation industry. This mandate is fulfilled by the South African Civil Aviation Authority (SACAA) as an agency of the Department of Transport (DoT). SACAA achieves the objectives set out in the Act by complying with the Standards and Recommended Practices (SARPs) of the International Civil Aviation Organisation (ICAO), while considering the local context when issuing the South African Civil Aviation Regulations. All proposed developments or activities in South Africa that potentially could affect civil aviation must thus be assessed by SACAA in terms of the Civil Aviation Regulations and South African Civil Aviation Technical Standards (SA CATS) to ensure aviation safety. Potential impacts from the piggery station must be reviewed by these authorities. The Obstacle Evaluation Committee (OEC) which consists of members from both the SACAA and South African Air Force (SAAF) fulfils the role of streamlining and coordinating the assessment and approvals of proposed developments or activities that have the potential to affect civil aviation, military aviation, or military areas of interest. With both being national and international priorities, the OEC is

Legislation	Description of Legislation and Applicability
	responsible for facilitating the coexistence of aviation and renewable energy development, without compromising aviation safety. Applicability: The details of the proposed project will be provided to the SACAA who will be registered on the stakeholder list.

4.2 PROVINCIAL AND LOCAL LEGISLATION AND PLANNING

The table below summarises the key policies and plans as an outline of the governance framework for the project.

Table 4-2 – National, Provincial and Local Legislation and Plans

Applicable Plan	Description of Plan
KwaZulu-Natal Planning and Development Act 6 of 2008	Strategic spatial development intentions for the municipality based on the IDP and SDF, influenced by and in alignment with adjacent municipalities.
KwaZulu-Natal Provincial Spatial Economic Development Strategy (2022)	The prioritisation of spatial economic development initiatives in the province, including strategy to ensure that investment occurs in the sectors that provide the greatest socio-economic return to investment.
KZN Biodiversity Sector Plan 2016	CBAs are areas required to meet biodiversity targets for ecosystems, species and ecological processes, as identified in a systematic biodiversity plan – and may be terrestrial or aquatic. The primary purpose of a map of CBAs is to guide decision-making about where best to locate development. It should inform land-use planning, environmental assessment and authorisations, and natural resource management, by a range of sectors whose policies and decisions impact on biodiversity. It is the biodiversity sector's input into multi-sectoral planning and decision-making processes. The site, although developed to a certain extent, is located in a CBA: Optimal as defined by the KZN Biodiversity Sector Plan (2016).
Ezemvelo KZN Wildlife Strategic Plan, 2015	To ensure effective conservation, sustainable use of biodiversity, and promote ecotourism within KwaZulu-Natal in collaboration with stakeholders for the benefit of present and future generations.
KwaZulu-Natal Amafa and Research Institute Act, 2018	The KwaZulu-Natal Amafa and Research Institute Act, 2018 (Act No. 05 of 2018) was established to recognise the KwaZulu-Natal Amafa and Research Institute as the provincial heritage resources authority for the KwaZulu-Natal in terms of Section 23 of the National Heritage Resources Act, 1999, and to amalgamate <i>Amafa aKwaZulu-Natali</i> in terms of the KwaZulu-Natal Heritage Act, 2008. The aim of the of the Institute and Act is to identify, conserve, protect, manage and administer heritage resources, whilst researching and generating relevant knowledge to provide solutions within the field of heritage in the province.

Applicable Plan	Description of Plan
	Applicability: The proposed activities and associated structures and infrastructure exceed 5000m ² and therefore triggers the requirement for a HIA to be undertaken.
Newcastle Integrated Development Plan (IDP) (2024-2025)	The Newcastle Local Municipality IDP highlights mining as an important component of the economy for the municipality. However, it also highlights the concerns around cessation of mining activities without adequate rehabilitation which has implications for environmental management in terms of water and groundwater stability.
Amajuba District IDP 2025-2026	The IDP highlights water quality in the Ingagane River as being a concern as it is affected by coal mine dust, iron, and manganese from mining operations. It's an issue backdating from 2015 and continues to be a major challenge. Drought conditions affect the available supply from the Buffalo River.
Amajuba District Environmental Management Framework (EMF), 2019	The specific aim of the EMF is to: Integrate environmental sustainability into municipal planning and operations, and to inform decision making regarding specific development applications in terms of the EIA and other regulatory processes. This is in line with the aims of an EMF as defined in the EMF Regulations. The EMF highlights water pollution as a major concern. Water quality within the ADM is mainly affected by anthropogenic pollution from the domestic, industrial, agricultural and mining sectors.

4.3 ADDITIONAL PERMITS AND AUTHORISATIONS

Table 4-3 – Additional Permits and Authorisations required for the Proposed Project

Permits / Authorisation	Legislation	Relevant Authority	Status
Section 38 (8) for the review of environmental documents	Section 38 (1) & (8) of the NHRA	SAHRA	Pending
WUL	NWA	DWS	Pending submission
Permits for removal or destruction of nationally protected plant species	NEM:BA	DFFE	If required, permits will be obtained prior to the commencement of construction (before afforestation and road development).

4.4 LISTED ACTIVITIES UNDER THE NEMA EIA REGULATIONS

The listed activities that have been identified in terms of the NEMA EIA Regulations are presented in **Table 4-4** below.

Table 4-4: Listed Activities under the NEMA EIA Regulations

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
10	The development and related operation of infrastructure exceeding 1 000 metres in length for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes – (i) with an internal diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more; excluding where— (a) such infrastructure is for the bulk transportation of sewage, effluent, process water, wastewater, return water, industrial discharge or slimes inside a road reserve or railway line reserve; or (b) where such development will occur within an urban area.	Underground outflow pipelines are existing however there are extended control release pipelines and transfer pipelines to the evaporation dam which exceeds 1000m in length and less than 0.36 m (0.2m) in diameter and 120 litres per second therefore this activity is not applicable.
12	The development of 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; (dd) where such development occurs within an urban area.	The proposed forestry plantation area will result in several water crossing points over the entire study area therefore this activity is applicable.
13	The development of facilities or infrastructure for the off-stream storage of water, including dams and reservoirs, with a combined capacity of 50 000 cubic metres or more, unless such storage falls within the ambit of activity 16 in Listing Notice 2 of 2014.	The existing evaporation dam will be redesigned for the long-term water management strategy therefore it does not constitute development; this activity is not applicable.

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
24	The development of a road— with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres but excluding a road— (a) which is identified and included in activity 27 in Listing Notice 2 of 2014; (b) where the entire road falls within an urban area; or (c) which is 1 kilometre or shorter.	The new roads will have a width of 4 m therefore this activity is not applicable .
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.	Clearance of indigenous vegetation is expected to be more than 1 Ha, the total area to be cleared will be confirmed during the specialist investigations therefore this activity is applicable .
30	Any process or activity identified in terms of section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).	Removal of vegetation that will require a process/ permit under the NEM:BA. It is possible that the project will require the removal of species that will trigger the need for permits under the NEM:BA. These will be confirmed during the specialist investigation therefore this activity is potentially applicable.
Activity No(s):	Provide the relevant Scoping and EIA Activity(ies) as set out in Listing Notice 2 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
6	The development of facilities or infrastructure for any process or activity which requires a permit or licence or an amended permit or licence in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent,	A WULA is underway as the proposed activities involves several water use activities including the discharge of effluent into a watercourse therefore this activity is applicable .
11	The development of facilities or infrastructure for the transfer of 50 000 cubic metres or more water per day, from and to or between any combination of the following- (i) water catchments; (ii) water treatment works; or	The compartments may be considered impoundments therefore this activity is applicable .

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
	(iii) impoundments; excluding treatment works where water is to be treated for drinking purposes.	
15	The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for – the undertaking of a linear activity; or maintenance purposes undertaken in accordance with a maintenance management plan.	Indigenous vegetation clearing will exceed 20 Ha, therefore this activity is applicable .
Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 3 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates. Ensure to include thresholds/area/footprint applicable.
4	The development of a road wider than 4 metres with a reserve less than 13,5 metres. viii. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;	Development of the new access roads will total approximately 63 km with a road width of 4m within a CBA, therefore this activity is applicable .
12	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. v. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans	Indigenous vegetation to be cleared will exceed 300 square metres in a CBA therefore this activity is applicable .
14	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	The project includes forestry development in a CBA therefore this activity is applicable

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
	(c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse; In KZN. vii Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans.	

5 SCOPING METHODOLOGY

5.1 S&EIR PROCESS AND PHASING

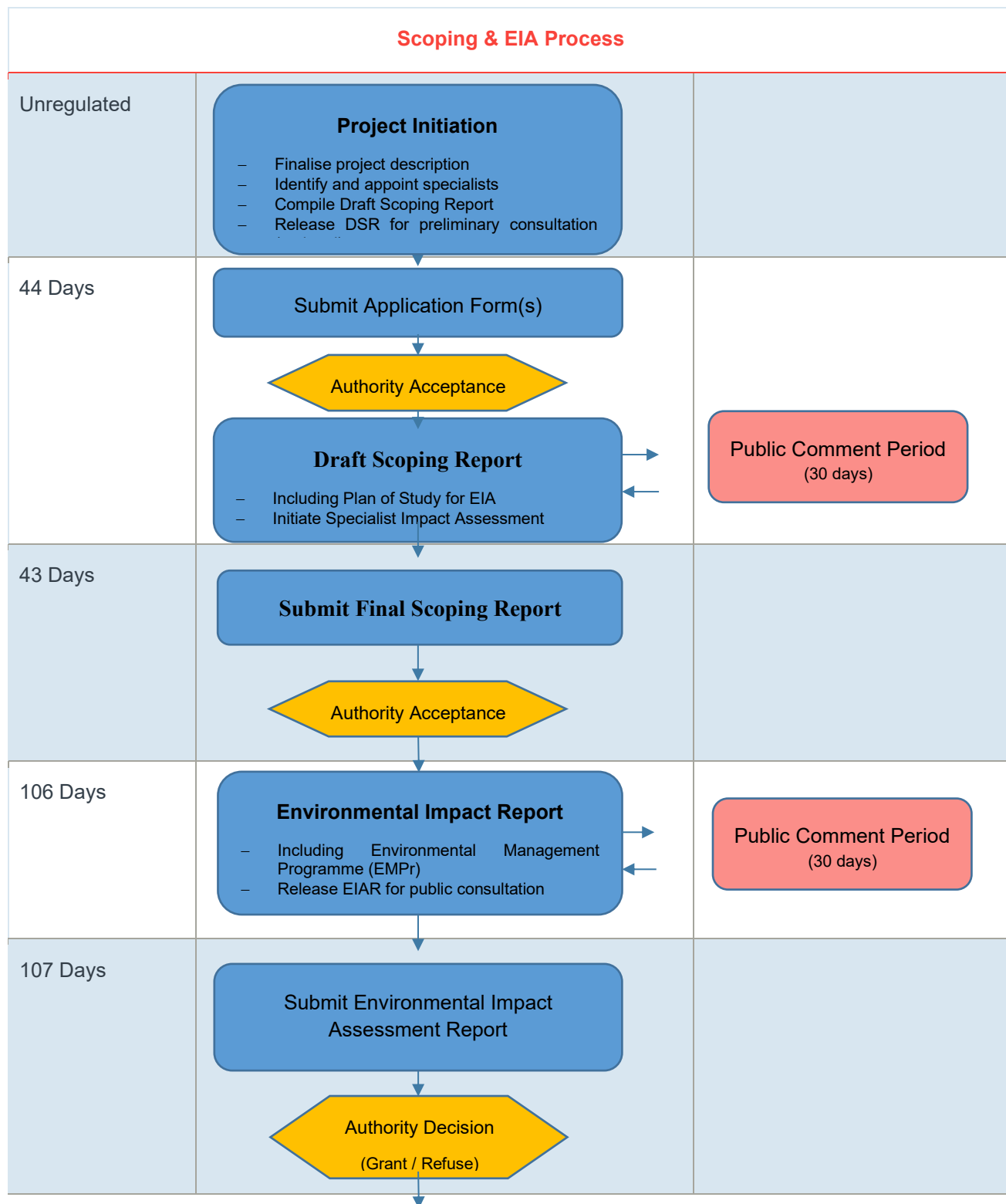
The S&EIR process consists of various phases with associated timelines as defined in the EIA Regulations. The process can generally be divided into four main phases, namely; (i) an unregulated pre-application phase, (ii) an Application and Scoping Phase (**current phase**), (iii) an Impact Assessment Phase and (iv) Authorisation and Appeal Phase.

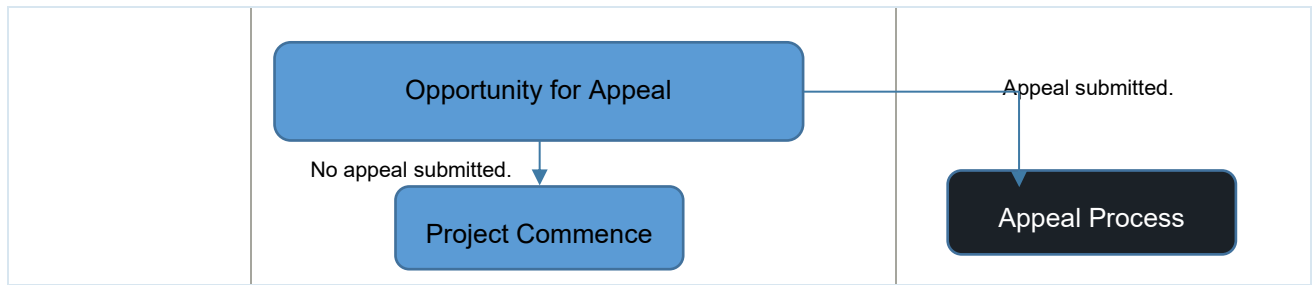
The main objectives of the phases can be described as follows:

- Pre-Application Phase:
 - Undertake consultation meetings with the relevant authorities to confirm the required process and general approach to be undertaken;
 - Identify stakeholders, including neighbouring landowners/residents and relevant authorities;
 - Compile a DSR describing the affected environment and present an analysis of the potential environmental issues and benefits arising from the proposed project that may require further investigation in the Impact Assessment Phase;
 - Develop draft terms of reference for the specialist studies to be undertaken in the Impact Assessment Phase; and
 - Inform stakeholders of the proposed project, feasible alternatives and the S&EIR process and afford them the opportunity to register and participate in the process and identify any issues and concerns associated with the proposed project.
- Application and Scoping Phase:
 - Compile and submit application forms to the CA and pay the relevant application fees;
 - Incorporate comments received from stakeholders during the pre-application phase into the DSR;
 - Release of the DSR for a 30-day comment period; and
 - Submit the finalised FSR including a comments and responses report, following the consultation period, to the relevant authority, in this case the DMPR, for acceptance/rejection.
- Impact Assessment Phase:
 - Continue to inform and obtain contributions from stakeholders, including relevant authorities, stakeholders, and the public and address their relevant issues and concerns;
 - Assess in detail the potential environmental and socio-economic impacts of the project as defined in the DSR;
 - Identify environmental and social mitigation measures to avoid and/or address the identified impacts;
 - Conduct the required specialist studies;
 - Develop and/or amend environmental and social management plans based on the mitigation measures developed in the EIR;
 - Submit the EIR and the associated EMP to the competent authority to undertake the decision making process;
 - Authorisation and Appeal Phase;

- The DMRE to provide written notification of the decision to either grant or refuse EA for the proposed project; and
- Notify all registered I&APs of the decision and right to appeal.

Table 5-1 – Scoping and EIA Process





5.1.1 APPLICATION FOR ENVIRONMENTAL AUTHORISATION

An application for EA was submitted simultaneously with this DSR on 2 September 2025. A reference number will be included in the Final Scoping Report (FSR).

5.1.2 PUBLIC PARTICIPATION PROCESS

5.1.2.1 Purpose of the Public Participation Process

The Public Participation Process (PPP) comprises a series of inclusive and culturally appropriate interactions aimed at providing stakeholders with opportunities to express their views, so that these can be considered and incorporated into the S&EIR process. Effective stakeholder engagement requires the prior disclosure of relevant and adequate project information to enable stakeholders to understand the risks, impacts, and opportunities of the proposed project.

The objectives of the stakeholder engagement process can be summarised as follows:

- Identify relevant individuals, organisations and communities who may be interested in or affected by the project;
- Clearly outline the scope of the project, including the scale and nature of the existing and proposed activities;
- Identify viable proposed project alternatives that will assist the relevant authorities in making an informed decision;
- Identify shortcomings and gaps in existing information;
- Identify key concerns, raised by stakeholders that should be addressed in the subsequent specialist studies;
- Highlight the potential for environmental impacts, whether positive or negative; and
- To inform and provide the public with information and an understanding of the proposed project, issues and solutions.

The EIA Regulations, in Chapter 6 provide clear guidelines regarding the minimum requirements for public participation as part of the EIA process. Although these regulations do not prescribe in detail the methods of public participation, the 2017 Public Participation Guidelines in terms of the NEMA EIA Regulations, as amended give direction and emphasise the importance of meaningful consultation.

5.1.3 AUTHORITY CONSULTATION

Before the start of the S&EIR process, it is necessary for the EAP to convene a pre-application consultation meeting with the CA. The key objectives of the pre-application consultation meeting are to notify the CA of the applicant's intent to submit an EA application, provide information about the technical scope of the proposed project and confirm the approach to the EIA and the PPP.

A pre-application meeting was undertaken with the DMPR on 2 September 2025. The outcome of the pre-application meeting confirmed the process to be undertaken, the requirements for the PPP and the specialist studies.

5.1.3.1 Stakeholder Identification

Chapter 6 (40) (2) (a -d) and (41)(2)(b) of the EIA Regulations require consultation with-

- The CA.
- Every State department that administers a law relating to a matter affecting the environment relevant to an application for an EA.
- All organs of state which have jurisdiction in respect of the activity to which the application refers.
- All potential or, where relevant, registered I&APs.
- In addition to the above, the following I&APs must receive notification of the proposed application:
- The occupiers of the site and, if the applicant is not the owner or person in control of the site on which the activity is to be undertaken, the owner or person in control of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken.
- Owners, persons in control of, and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken.
- The municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area.
- The municipalities which have jurisdiction in the related areas.
- Any other party required by the CA.

Section 41 of the EIA Regulations states that written notices must be given to identified stakeholders.

Relevant commenting authorities have been automatically registered as Interested and Affected Parties (I&APs). In accordance with the EIA Regulations, all other persons must request in writing to be placed on the register, submit written comments or attend meetings in order to be registered as stakeholders and included in future communication regarding the project.

5.1.3.2 Stakeholder Notification

Direct Notification

The objectives of the notification process are as follows:

- Notify potential I&APs of Seriti's intent to apply for EA.
- Share information about the proposed Project, EA application, EIA and proposed PPP, and opportunities for comment.
- Invite stakeholders to register as I&APs and to participate in the EIA process by contributing comments as milestones are achieved.
- Invite I&APs to attend public meetings.
- In terms of the POPIA, to obtain I&APs' consent to use their contact details for the sole purpose of providing them with information about the proposed Project and inviting them to contribute comments, as well as reflecting their names in the CRR.

Notification of the project was issued to potential I&APs, via direct correspondence (i.e., site notices, SMSs and e-mail). Proof of the notification letter that was circulated and the site notices that were erected will be included in Appendix E of the FSR.

Newspaper Advertisements

According to Regulation 41 (1) (c) of the EIA Regulations, an advertisement must be placed in one local newspaper or any official Gazette and in at least one provincial or national newspaper if the activity extends beyond the metropolitan or district municipality boundaries.

Given the location of the project, which is confined to one local municipality, newspaper advertisements were placed in one local newspaper.

Notification of the proposed project was issued to the general public via an advertisement published in the Newcastle Express, in English and isiZulu on 3 February 2026. As mentioned above, the purpose of the advertisement was to notify the general public of the proposed project and provide an opportunity to register on the project database and provide input into the process through the availability of the DSR.

A copy of the advertisement will be included in Appendix E of the FSR.

5.1.4 SITE NOTICES, DSR AND NON-TECHNICAL SUMMARY

The site notices provided background information about the application, the nature and location of the activity, where further information on the application could be obtained, the manner in which, and the person to whom representations in respect of the application could be made. The site notice was published in A2 size. Site notices that were erected will be included in Appendix E the FSR.

Although the project is located within the Roy Point Colliery, WSP placed site notices at locations that are visible to the larger public including road intersections and public libraries. The site notices were placed at the public places, with permission, in English and Isizulu.

Printed copies and electronic copies of the DSR, Non-Technical Summary of the DSR and Registration and Comment Form were also made available during the public comment period.

The DSR is currently available for public review from on the WSP website (<https://www.wsp.com/en-za/services/public-documents>). The DSR was also made available for review in hard copies at the Newcastle Public Library on Scott Street.

5.1.5 COMMENTS AND RESPONSES

All the issues, questions, comments, and recommendations contributed by registered I&APs during the S&EIR process will be incorporated into, and responded to, a Comment and Response Register (CRR). Contributions received by I&APs have been categorised according to relevant topics. An important consideration during the scoping phase is that the DSR is released into the public domain within the same timeframe as the PPP and I&APs are provided with the notification of the project and of the DSR comment period simultaneously, therefore the DSR will not contain all the details of the PPP that was undertaken, this will be included in the FSR.

The CRR will include the following:

- List of all issues raised;
- Record of who raised the issues;
- Record of where the issues were raised;
- Record of the date on which the issue was raised; and
- Response to the issues.

5.2 DEFINING THE BASELINE ENVIRONMENT

The site has been the subject of a number of specialist assessments in support of a parallel planning and statutory approvals process being undertaken for the proposed development. The specialist studies from this process and further research have been utilised to support the environmental application process. Therefore, the description of the baseline environment has been compiled through a combination of site investigations, desktop reviews and information obtained from the specialist assessments. Desktop reviews made use of available information including existing reports, aerial imagery and mapping.

5.2.1 DFFE WEB BASED SCREENING TOOL

The DFFE has developed the National Web-based Environmental Screening Tool to flag areas of potential environmental sensitivity related to a site as well as a development footprint and produces the screening report required in terms of regulation 16 (1)(v) of the EIA Regulations. The Notice of the requirement to submit a report generated by the national web-based environmental screening tool in terms of section 24(5)(h) of the NEMA and regulation 16(1)(b)(v) of the EIA regulations states that the submission of a report generated from the national web-based environmental screening tool, as contemplated in Regulation 16(1)(b)(v) of the EIA Regulations, is compulsory when submitting an application for EA in terms of Regulation 19 and Regulation 21 of the EIA Regulations.

The Screening Report generated by the National Web-based Environmental Screening Tool contains a summary of any development incentives, restrictions, exclusions or prohibitions that apply to the proposed development footprint as well as the most environmentally sensitive features on the footprint based on the footprint sensitivity screening results for the application classification that was selected.

A screening report for the proposed project was generated and is attached as **Appendix D**. The Screening Report for the project identified various sensitivities for the site. The report also generated a list of specialist assessments that should form part of the S&EIR process based on the development type and the environmental sensitivity of the site. Assessment Protocols in the report provide minimum information to be included in a specialist report to facilitate decision-making.

Table 5-2 below provides a summary of the sensitivities identified for the development footprint.

Table 5-2 – Site sensitivities and verification

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity	Preliminary scoping assessment and Protocol for Specialist Study
Agriculture Theme		X			The DFFE Screening Tool does not prescribe a protocol of the agricultural theme therefore a specialist assessment will not be undertaken. The site is considered high sensitivity due to the very high land capability rating. However, based on the location of the site within a closed mine, the high sensitivity is refuted.

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity	Preliminary scoping assessment and Protocol for Specialist Study
					An Agricultural Assessment will not be conducted, however a Hydropedology study will be undertaken.
Animal Species Theme		X			The DFFE Screening Tool prescribed an animal species assessment be conducted based on the likely presence of sensitive avifaunal and mammal species. The site verification by the terrestrial biodiversity specialist conducted on 21-23 November 2023 confirmed One species highlighted in the screening report as a potentially sensitive feature was observed foraging on-site during the field survey, viz. Southern Bald Ibis (Vulnerable). Habitat suitability assessments further indicate that several other fauna SCC that are known to occur in the broader region, may be present in the study area. Therefore, a terrestrial animal species assessment will be incorporated into the Terrestrial Biodiversity Assessment.
Aquatic Biodiversity Theme	X				The DFFE Screening Tool prescribed that an Aquatic Biodiversity Assessment be undertaken. The field surveys undertaken on 17-19 October 2023 and 21-23 February 2024 confirmed that there is low aquatic biodiversity within the assessed systems. A wetland assessment was also conducted which confirmed the presence of wetlands on site. A specialist has been commissioned to undertake the Aquatic and Freshwater Assessment.
Archaeological and Cultural Heritage Theme	X				The DFFE Screening Tool prescribed that a Heritage Impact Assessment be undertaken for the archaeological and cultural heritage

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity	Preliminary scoping assessment and Protocol for Specialist Study
					theme due to the northern area of the site being located within 2km from a Grade II Heritage Site. A field survey was undertaken on 19 February 2024. The site visit confirmed the presence of a number of Late Iron Age stone walled settlement remains as well as recent historical graves and grave sites.
Civil Aviation Theme		X			The DFFE Protocol requires that a site verification be undertaken by the EAP or a specialist as the site is located between 8 and 15km from a civil aviation aerodrome.
Defence Theme				X	The DFFE protocol requires that a site verification be undertaken by an EAP for the defence theme.
Palaeontology Theme	X				The DFFE Screening Tool prescribed that a site verification be undertaken for the palaeontology theme. A Phase 1 Palaeontology Assessment was undertaken by a specialist in October 2023. Fossils were not identified during the walk through by the specialist.
Plant Species Theme			X		The DFFE Protocol requires that a compliance statement be completed for the site. A field survey was conducted by a specialist on 21-23 November 2025. No threatened or Near Threatened flora species were recorded in the study area during the field survey. A plant species assessment will be incorporated into the Terrestrial Biodiversity Assessment.
Terrestrial Biodiversity Theme	X				The DFFE Screen Tool prescribed that a Terrestrial Biodiversity Assessment be undertaken based on the Critical Biodiversity Area that the project area falls within.

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity	Preliminary scoping assessment and Protocol for Specialist Study
					A field survey was conducted by a specialist on 21-23 November 2025. The specialist confirmed that It is evident that large portions of the study area, as well as patches of the surrounding landscape, are designated as Critical Biodiversity Area CBA Optimal. It is noted however, that based on field observations and a study of aerial imagery, the KZNBSP delineations do not account for certain localised sites that have been modified. Several areas that are either highly disturbed or no longer contain natural habitat (transformed), are currently designated CBA Optimal, including inter alia, alien tree stands, portions of the former opencast pits (now rehabilitated grasslands), cultivated fields, miniature golf course, and various sites of built infrastructure (e.g., wedding and function venues and agricultural buildings). A specialist will be commissioned to undertake the Terrestrial Biodiversity Assessment.
Other site sensitivities identified					
Hydropedology					A desktop review of the original specialist study undertaken by Jones and Wagener in 2027, was undertaken by WSP in 2024. The review concluded that the hydropedology response units at Roy Point include 62% recharge, 29% interflow soils, 7% responsive soils, and 2% stagnating soils. Future forestry areas cover a proposed area of 4 315 560 m² (or 43% of entire Roy Point area). The hydropedology response units of the future forestry areas are 55% recharge, 42% interflow soils, 1% responsive soils, and 1% stagnating soils. The purpose of the forestry is for uptake of excess water, which is likely to result in

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity	Preliminary scoping assessment and Protocol for Specialist Study
					localised desiccation of wetland systems, specifically where the forestry areas are on interflow soils. At catchment scale, the future forestry area covers 0.1% of catchment V31J and 1.74% of catchment V31K. In terms of impact on river flow for the quaternary catchment areas, this will be an insignificant impact. Lining of the evaporation dams may reduce baseflow to the river, but in terms of quality the liner will prevent poor quality water to enter the aquifer and ultimately the stream.
Hydrogeology					A site visit and hydrocensus was conducted on 25-28 March 2024 and 9-12 April 2024. It was undertaken within a 3 km radius around the mine area. The analysis of the hydrocensus data will be used to determine the volumes of water that will be reduced by the plantations.
Water and Salt Balance					The key project objective is to develop a WSB for Roy Point Colliery to function as a reporting and management tool which represents the current site conditions and current as well as planned management practices. Seriti requires the following water management options to be developed as part of the mine water management strategy for Roy Point: - Controlled Release – of mine water from the Southern Compartment into the Knocknrex River during conditions of peak flooding into the Ingagane River. - Evapotranspiration (ET) - Implementation of forestry as a closure land use to minimise surface water ingress into the opencast and underground workings.

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity	Preliminary scoping assessment and Protocol for Specialist Study
					- Evaporation – Evaporation of mine affected water stored in the evaporation dam to prevent decant of dirty water into the rivers. In addition, the study is required to: - Assess the water pollution sources and their responses to climate and groundwater influences. - Confirm and further identify and quantify seepage and leakage points. - Provide the necessary information to inform the water management strategy. - Assist with the design of water management solutions including storage, treatment and assisted evaporation to minimise the risk of spillage and seepage to the receiving environment.
Surface Water Assessment					The Surface Water Impact Assessment will be undertaken in support of the permitting process for the long-term water management measures for the Roy Point Colliery and: Provides an overview of the project area's surface water baseline settings before implementing the proposed project. Provides an overview of the site's climatic and hydrological setting. Identifies potential surface water impacts associated with the project. Undertakes a surface water impact assessment of each identified impact. Proposes mitigation and management measures to minimise potential impacts.

5.3 IDENTIFICATION AND EVALUATION OF POTENTIALLY SIGNIFICANT IMPACTS DURING THE SCOPING PHASE

The potential impacts associated with the proposed development were determined at both a desktop level based on existing information, as well as the field assessment. The following methodology was used:

- Identify potential sensitive environments and receptors that may be impacted on by the proposed development (**Section 7**);
- Identify the type of impacts that are most likely to occur (including cumulative impacts) (**Section 7**);
- Determine the nature and extent of the potential impacts during the various developmental phases, including, construction, operation and decommissioning;
- Identify potential No-Go areas (if applicable); and
- Summarise the potential impacts that will be considered further in the EIA phase through detailed specialist studies.

Appendix 2 of the EIA Regulations requires the identification of the significance of potential impacts during scoping (**Section 7.9**). To this end, an impact screening tool has been used in the scoping phase. The screening tool is based on two criteria, namely probability; and, consequence, where the latter is based on general consideration to the intensity, extent, and duration.

The scales and descriptors used for scoring probability and severity are detailed in **Table 5-3** and **Table 5-4** respectively.

Table 5-3 - Significance Screening Tool

	Consequence Scale				
Probability Scale		1	2	3	4
	1	Very Low	Very Low	Low	Medium
	2	Very Low	Low	Medium	Medium
	3	Low	Medium	Medium	High
	4	Medium	Medium	High	High

Table 5-4 - Probability Scores and Descriptors

Score	Descriptor
4	Definite: The impact will occur regardless of any prevention measures
3	Highly Probable: It is most likely that the impact will occur
2	Probable: There is a good possibility that the impact will occur

1	Improbable: The possibility of the impact occurring is very low
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6 BASELINE ENVIRONMENT

The following chapter presents an overview of the biophysical and socio-economic environment in which the proposed project is located. It is important to gain an understanding of the project area and its surroundings, as it will provide for a better understanding of the receiving environment in which the project is being considered.

The description of the baseline environment is essential in that it represents the conditions of the environment before the implementation of the project (i.e., the current, or status quo, environment) against which environmental impacts of the proposed project can be assessed and future changes monitored.

The area has previously been studied to some extent and is recorded in various sources of information. Consequently, some components of the baseline have been generated based on literature review. However, where appropriate, baseline information has been supplemented or generated by specialists appointed to undertake baseline and impact assessments for the proposed project.

The following characteristics of the receiving environment for the study area are described in the table below.

Table 6-1 – Characteristics of the receiving environment

Receiving Environment	Characteristics
Physical	- Climate - Geology and Soils - Hydropedology - Hydrogeology - Surface Water
Biological	- Vegetation - Habitats - Biodiversity Conservation Plans - Plant Species - Animal Species
Social and Economic	- Heritage - Palaeontology - Socio-Economic - Traffic

6.1.1 CLIMATE

According to the Surface Water Impact Assessment (WSP, 2026), The Roy Point Colliery is in an oceanic climate, also known as a marine climate, a humid temperate climate sub-type, in Köppen classification (Cfb). This climate is characterised by cool summers and mild winters, with a relatively narrow annual temperature range and few extremes of temperature. Thunderstorms are usually few since strong daytime heating and hot and cold air masses meet infrequently in the region. Average daily summer temperatures range between 28°C and 20°C, while winter temperatures range between 16°C and 4°C. The maximum temperatures are consistently experienced in December and January,

with a mean monthly temperature of 28°C, while minimum temperatures are experienced in June and July, with a mean temperature of 4°C. Based on the analysed catchment-wide rainfall dataset obtained from the WR2012 study, the highest rainfall consistently occurs from October to March, while the lowest is experienced between April and September. The area's Mean Annual Precipitation (MAP) is approximately 796 mm. 90% of rainfall events during the wettest month of January are not expected to exceed 201 mm, while 90% of rainfall events during the driest month of July will not be below 32 mm (**Figure 6-1**).

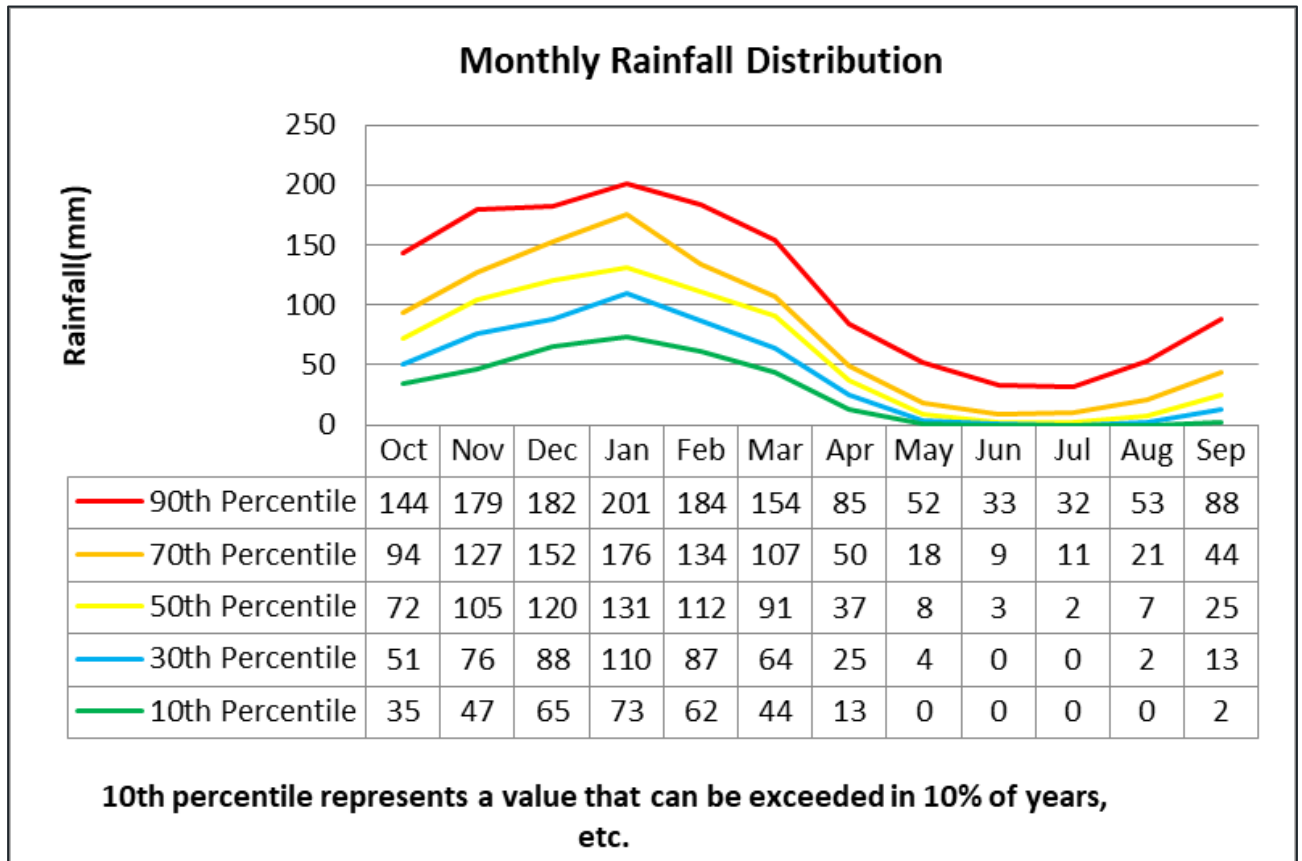


Figure 6-1 – Monthly Rainfall Distribution

The Mean Annual Runoff (MAR) depth was calculated to be 58 mm per annum, meaning approximately 7% of the MAP is redistributed as surface runoff. The highest runoff occurs in February, mainly because of antecedent soil moisture from January. The 90th percentile runoff event is 36.1 mm, while the 10th percentile runoff event in the same month is 1.7 mm, as shown in **Figure 6-2**.

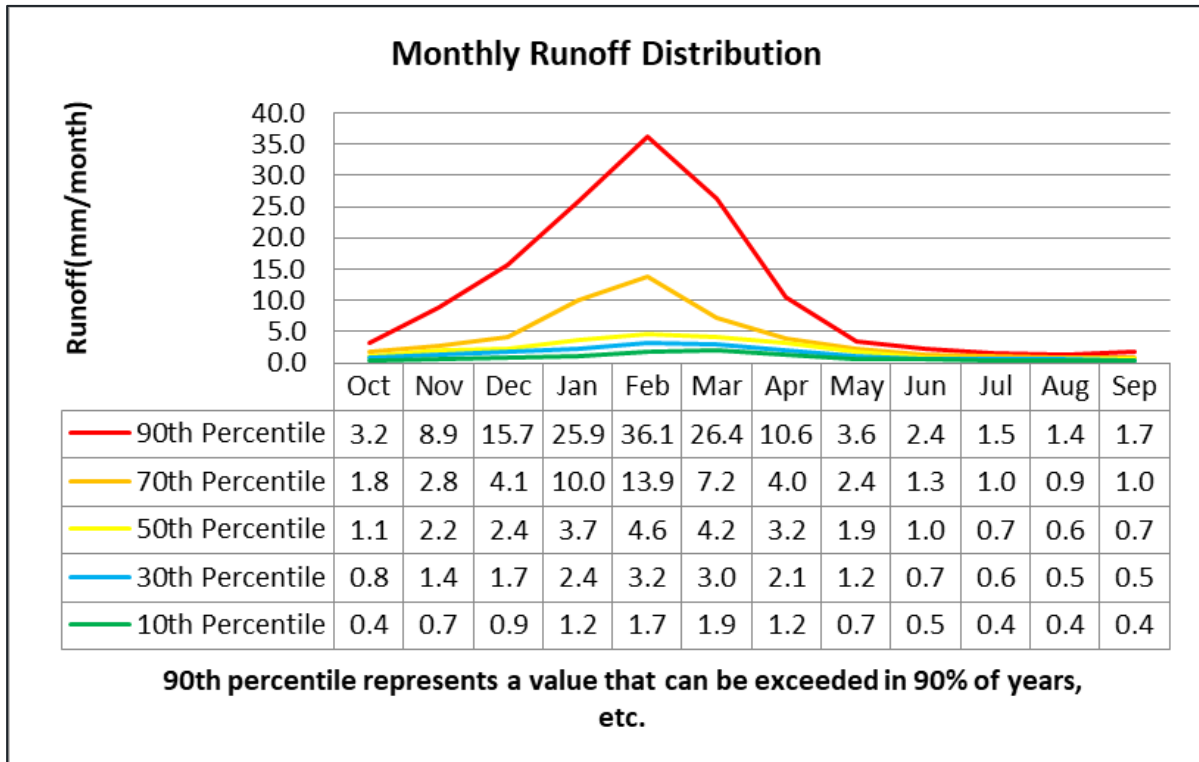


Figure 6-2 – Monthly Runoff Distribution

Evaporation exceeds the amount of rainfall (**Figure 6-3**), as confirmed by the Mean Annual Evaporation of 1500 mm, which is almost twice as high as the MAP.

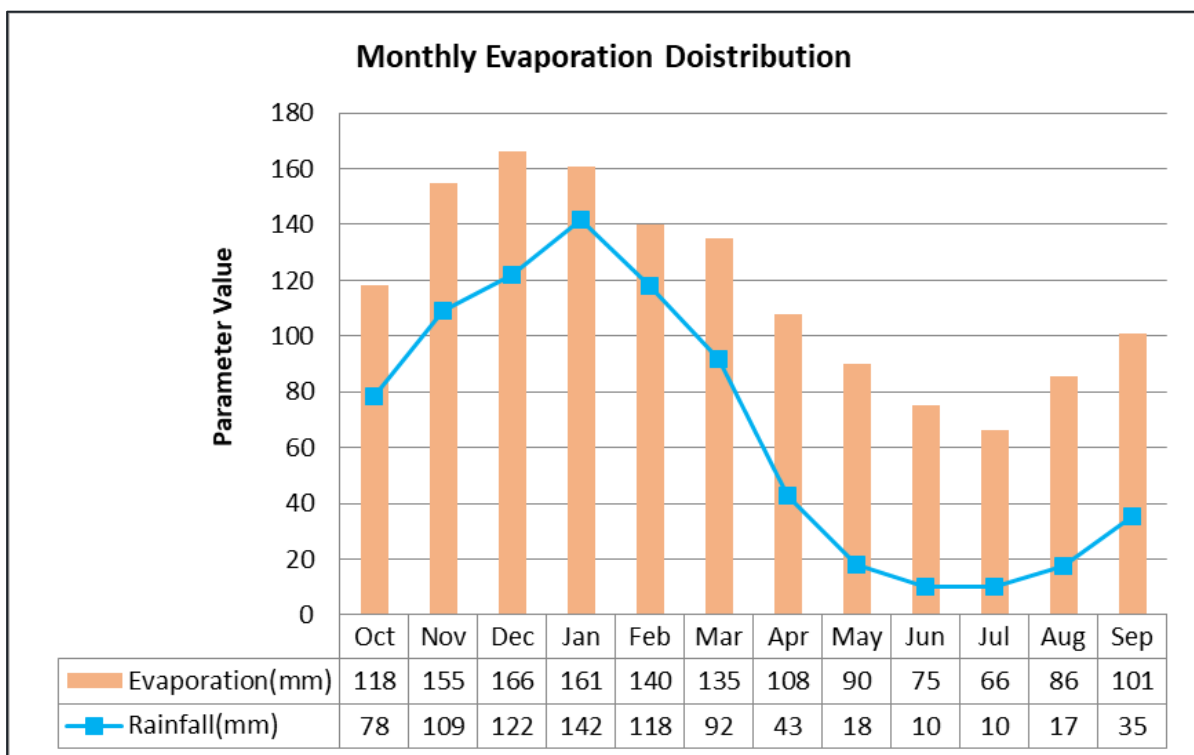


Figure 6-3 – Monthly Evaporation distribution

Specific climate trends recorded in the Water and Salt Balance Report (WSP, 2025) indicates the following which is based on the DWS Station V3E002:

- Highest rainfall is experienced in January (160 mm) followed by December (146 mm).
- Lowest rainfall is experienced in July (7.25 mm).
- Monthly rainfall does not exceed 160 mm for all the months.
- The station receives more than 50% of summer rainfall, and most of this rainfall is within 500 mm and 200 mm range.

6.1.2 GEOLOGY

According to the Hydrogeology Report (WSP, 2025) for the proposed project, Roy Point is located in the Klip River Coalfields of the Vryheid Formation. The Vryheid Formation forms part of the Ecca Group which represents the shallow marine and coastal plain depositional environment of the Karoo Basin. The formation consists of five coarsening-upwards sequences of marine facies, delta-front and delta plain-fluvial facies intruded by the Ingogo Dolerite Sill. The force of the intrusion has the potential to create a network of fractures. The site lithologies are overlain by a brown, fine- to medium-grained sandy topsoil, with the upper lithologies showing various degrees of weathering and erosion (WSP, 2023a).

The Klip River Coalfield comprises two seams namely the Gus seam at the bottom and the Alfred seam at the top. The Top Seam is more widely developed than the Bottom Seam. Jones & Wagener (2017) mentions that the coal seams outcrop against the thick transported soils over the south-eastern portion of the site.

6.1.3 TOPOGRAPHY AND DRAINAGE

According to the Roy Point Hydrogeology Report (WSP, 2025) for the proposed project, Roy Point is situated on and around a north-east trending hill, with the highest point being at an elevation of approximately 1339 mamsl. A visual representation of topography can be found in **Figure 6-4** where site drainage is discussed.

The previous slope analysis (Verdure, 2024) was updated using the LIDAR data which provides better resolution on the slope classes as presented in **Figure 6-4** and as follows:

- < 3%
- 3 – 5%
- 5 – 8%
- 8 – 10%
- 10 – 15%
- >15% Slopes larger than 15 % are found around the mountain edge mainly within and around the southern compartment.

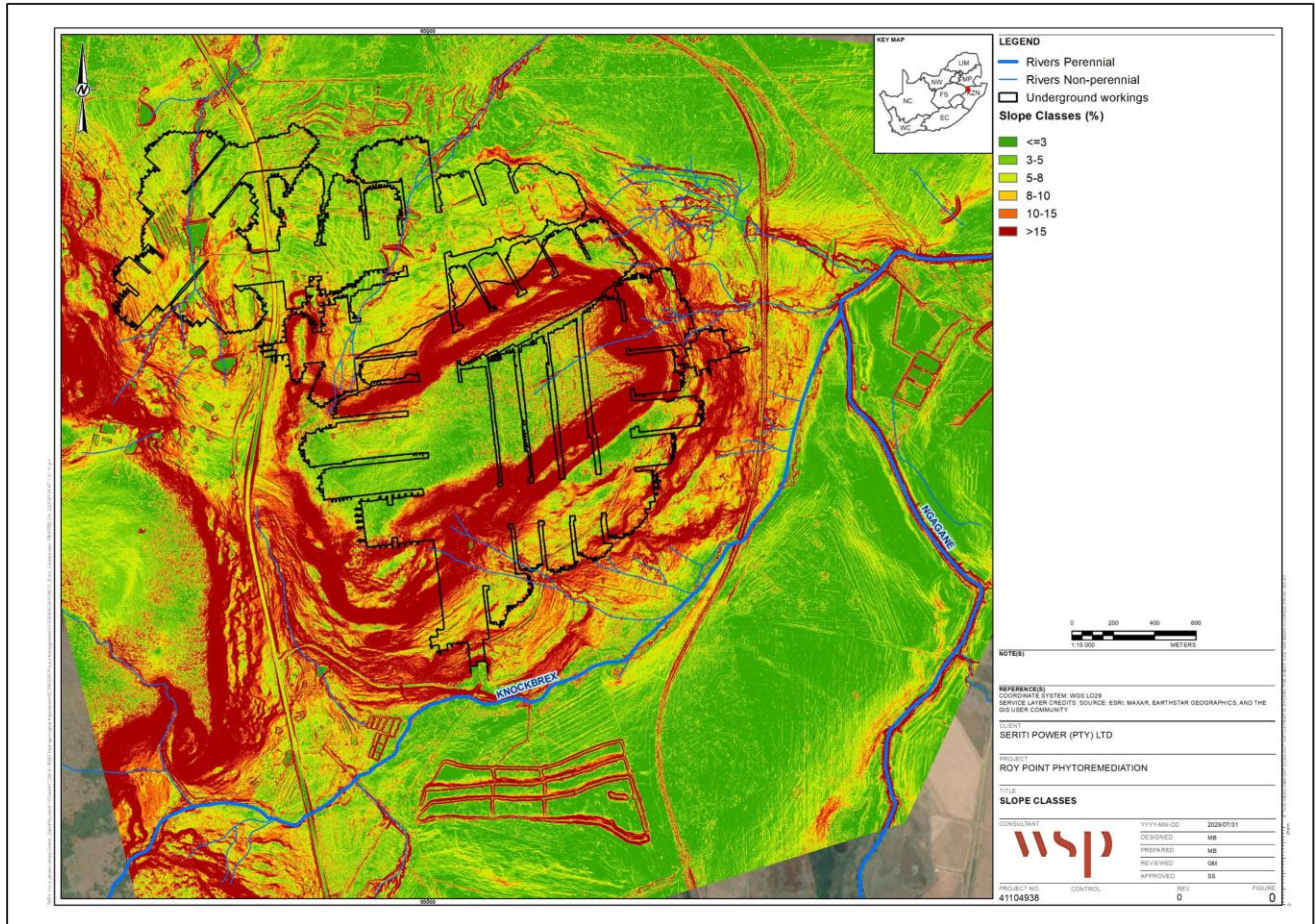


Figure 6-4 - Slope Classes

According to the Hydrogeology Report for the project (WSP,2025), the topography elevation (sourced from digital elevation files (DEM) dated 2020) were confirmed through survey of selected surface and groundwater stations in March 2024 and is presented in **Figure 6-5**.

Roy Point mine is overlain by a hill peaking over the Southern Compartment and forming a water divide between the V31J or V31K quaternary catchments. The drainage downgradient of the mine are noted as follows:

- South: Main Adit overflows to the Knockbrex Stream under controlled conditions through controlled release from the Southern compartment. The Knockbrex Stream flows to the east into the Ngagane river some 2.1 km downstream. The evaporation dam is located on the opposite bank to the Main Adit and south of the Knockbrex Stream (some 15.5 m above the base of the Knockbrex Stream).
- East: Ngagane River. The Ngagane river flows in a northerly direction before turning in an easterly direction.
- North-east: Tributary of the Ngagane river on the northern boundary.
- North: Flow is in a northern direction towards the Ncandu River in the V31J catchment area of Roy Point mining.

6.1.4 HYDRLOGY

According to the Hydrogeology Report for the project (WSP,2025), the Roy Point mine is situated within the Pongola-Mtamvuna Water Management Area, with the majority of the site within the V31K

quaternary catchment and the remaining area to the north-western section within the V31J quaternary catchment. On the northern side of the mine area, surface water flows north towards the Ncandu River which is roughly 5 km north of the site. In the rest of the area, flow is towards the south, south-east and east into the Knockbrix stream which flows into the Ingagane River. The topography and drainage maps are presented in **Figure 6-5**.

The future forestry covers an area of 307.7 ha (rounded), of which 45.7 ha falls in catchment V31J and 262 ha are in catchment V31K. In terms of the catchments the future forestry areas are very small, namely

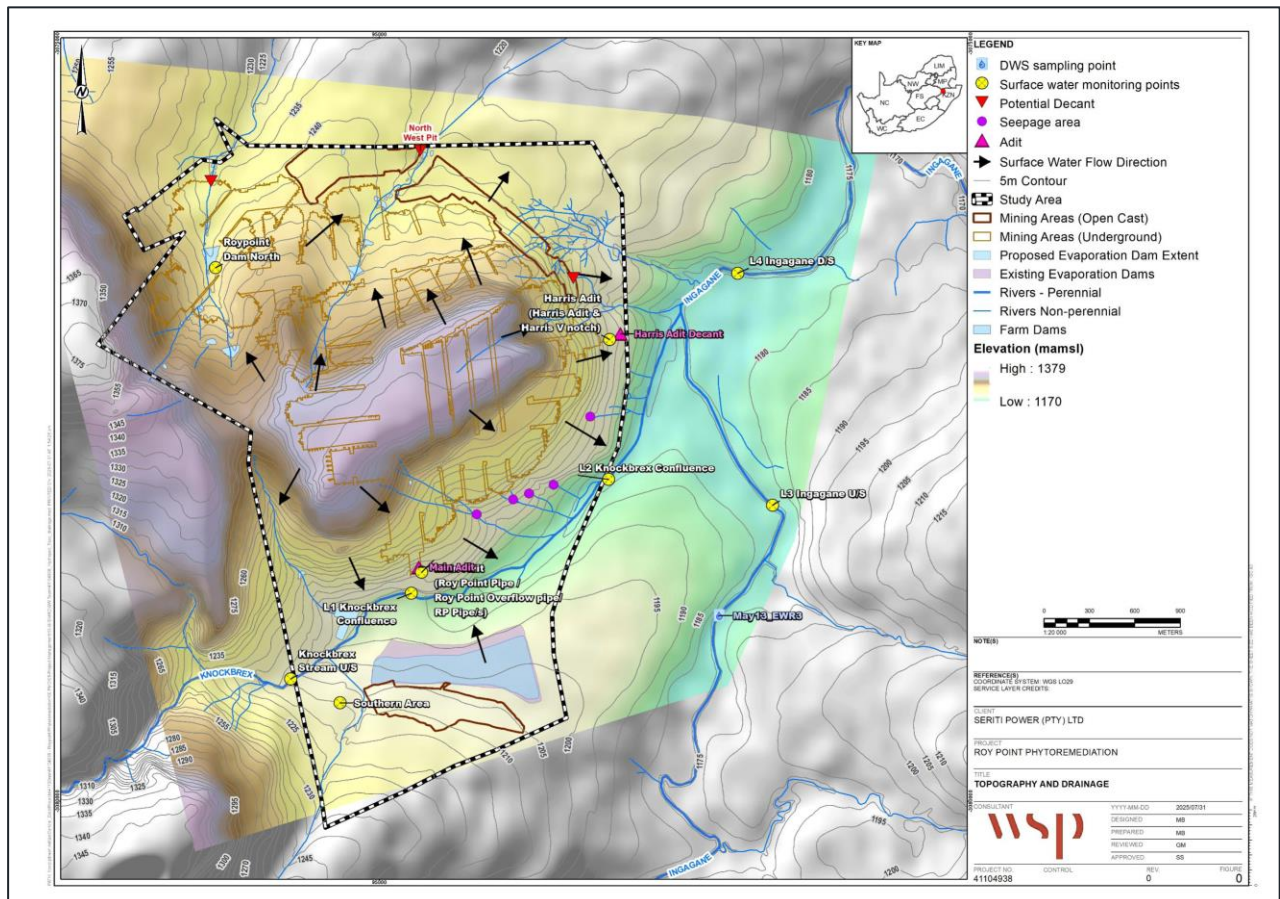


Figure 6-5 – Topography and drainage (Ncandu River is to the north of this map)

6.1.5 WETLANDS

A number of wetland systems have been delineated and classified in the study area during baseline studies (WCS, 2018) as shown in **Figure 6-6**. These include channelled valley bottom and hillslope seepage wetlands. In addition to the wetland systems, several other water resource features were identified and mapped in the previous wetland study by Edwards (2016) and WCS (2018). These are defined as follows (WCS, 2018):

- Remnant seep – historical hillslope seepage wetland habitat that has mostly been lost and rendered non-functional due to severe erosion;
- Watercourses – minor drainage lines that display neither wetland nor riparian habitat; and
- Channels – incised channels within valley bottom wetlands that display riverine characteristics.

- Dams – 23 small farm dams occur within the wetlands of the study site;

Approximately 227.78 ha (22%) of the study area is covered in wetland/watercourse habitat, including water resource features.

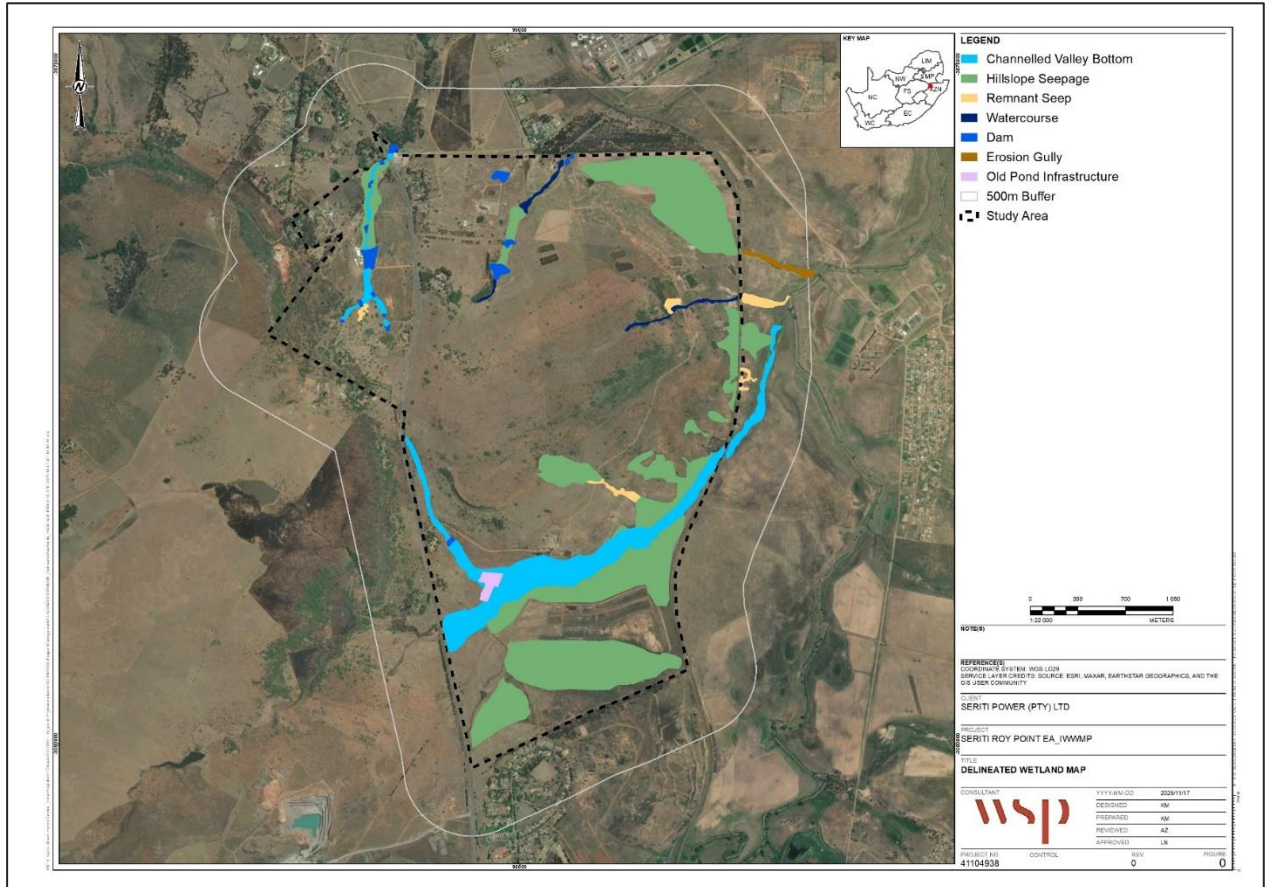


Figure 6-6 – Delineated wetlands within the Roy Point Study Area as mapped by Edwards (2016), WCS (2018) and confirmed by WSP (2023)

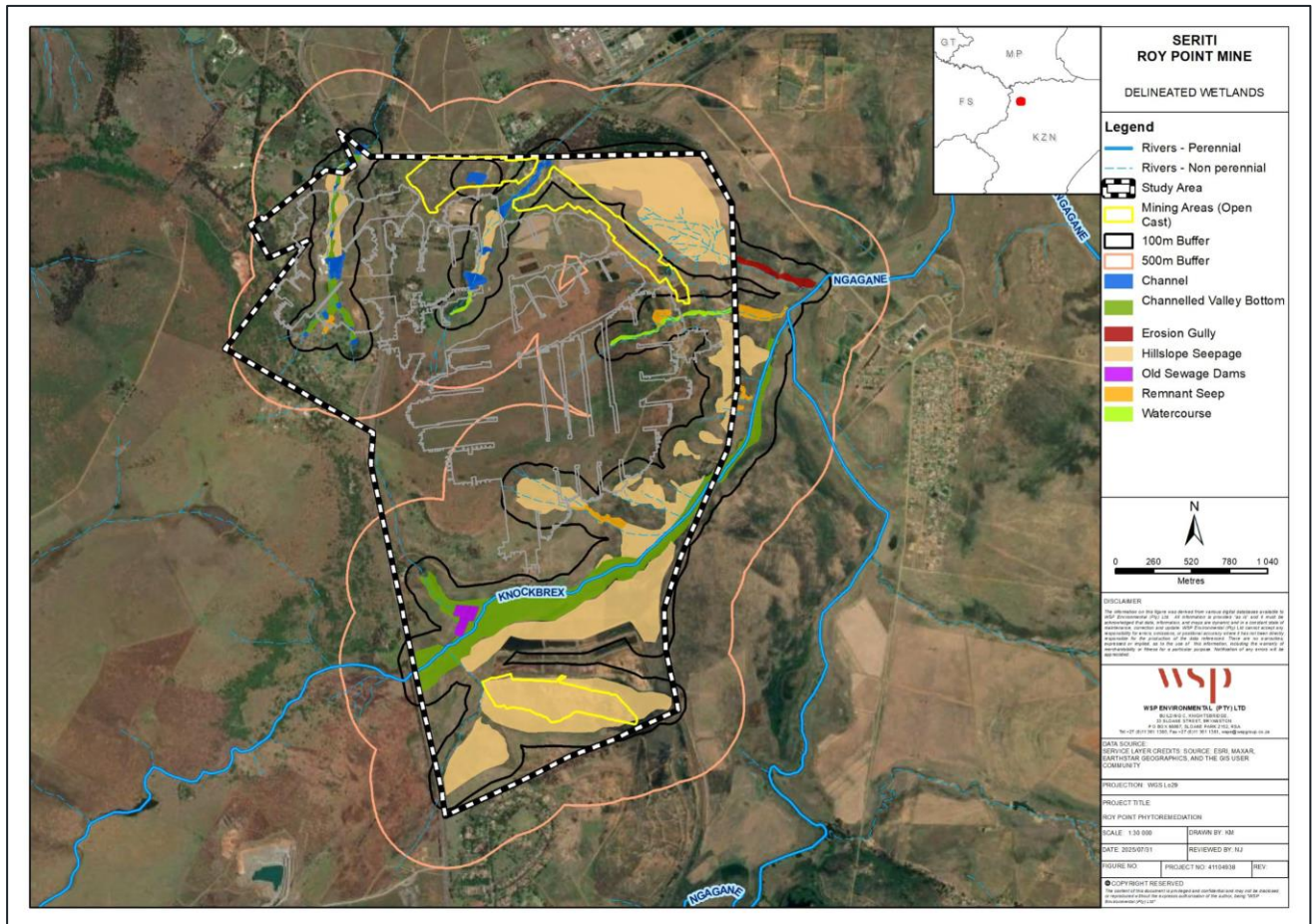


Figure 6-7 – Delineated wetlands overlaid by the mining areas

Three channelled valley bottom (CVB) wetlands were identified within the study area. The main CVB wetland south of the study area was associated with the Knockbrex stream, a tributary of the Ngangane River, while the two CVB wetlands located north of the study area were associated with non-perennial streams of the Ngangane and the Ncandu River. Channelled Valley Bottoms wetlands are characterized by having a well-defined stream channel but lacking characteristic floodplain features, which was the case for the CVB wetlands on site (**Figure 6-8**). These systems receive water inputs from the main channel and adjacent slopes (Kotze et al., 2008).

The CVB wetlands were dominated by hygrophilous grasses with dominant grass species such as *Cyperus congesa*, *Cyperus rupestris*, *Cyperus sphaerocephalus*, *Cynodon dactylon*, *Eragrostis plana*, *Fimbristylis dichotoma*, *Fuirena pubescens*, *Imperata cylindrica*, *Juncus oxycarpus*, and *Kyllinga erecta*. Areas of permanent inundation were characterized by more robust grass species such as *Miscanthus juncus*, the reed *Phragmites australis*, and the bulrush *Typha capensis*.



Figure 6-8 – Channelled valley bottom wetlands within the study area

The majority of wetland types identified on site were classified as Hillslope Seepage wetlands (Seep), covering an area of approximately 157.59 ha (**Figure 6-9**). Some of the seepage wetlands mapped in the study area are classified as ‘remnant seeps’, which are historical hillslope seepage wetland habitats that have mostly been lost and rendered non-functional due to severe erosion (WCS, 2018). Hillslope seeps are characterized by the colluvial movement of materials. Water inputs are mainly from sub-surface flow. The driving processes include rainfall infiltration, interflow and expression of water at the soil surface forming the hillslope seepage wetlands (Kotze et al., 2008). It was observed during the field survey that some of the seepage wetlands receive surface inflow from seepage from the evaporation dams.



Figure 6-9 – Hillslope seepage wetlands within the study area

The wetlands within the study area exist in a landscape that is highly transformed. The majority of the wetlands in the study area have been modified either through historic mining, rehabilitation and/or agricultural activities. The bulk of the wetlands within the study area are in a Largely Modified (PES D) to Seriously Modified (PES E) condition. The results of the current PES assessment are consistent with the previous results obtained by Edwards (2016) and WCS (2018).

Erosion was the major impact identified across all wetlands within the study area. However, according to WCS (2018), many of the erosional gullies pre-date the Roy Point Mine; meaning that these are not considered to have resulted from mining activities.

6.1.6 SURFACE WATER QUALITY

Seriti undertakes comprehensive surface water monitoring at various monitoring points around the mine and water resources. Water quality data have been received from Seriti. For surface water assessment, surface water data used to describe the baseline water quality is from the Main Adit, Roypoint North Dam, Knockbrex stream, Knockbrex confluence, and upstream and downstream of Ngagane River as indicated in **Table 6-2** and represented in **Figure 6-10** (Surface Water Impact Assessment, WSP, 2026).

Table 6-2 – Surface Water Quality Monitoring Points of Interest

Name	Point ID	Description	Latitude	Longitude
Knockbrex Stream	None	This is a surface water monitoring point upstream of the mine. It monitors water quality in the Knockbrex stream before the mine's flow contribution.	S 27. 822964	E 29.958273
Knockbrex Confluence	L2	This is a surface water monitoring point on the Knockbrex stream downstream of the mine. It monitors the water quality contribution from the southern compartment before discharging into the Ngagane River.	S 27. 810930	E 29.979497
Ngagane Upstream	L3	This is a surface water monitoring point upstream of the Knockbrex stream confluence with the Ngagane River. It monitors water quality on the Ngagane River before the Knockbrex stream contribution.	S 27.812390	E 29.990511
Ngagane Downstream	L4	This is a surface water monitoring point downstream of the Knockbrex stream confluence. It monitors water quality in the Ngagane River after the Knockbrex stream contribution.	S 27.798586	E 29.988058
Roy Point North Dam	None	This is a surface water monitoring point. It monitors water quality contribution from the open cast and the northern compartment.	S 27. 798515	E 29. 953024
Roy Point Pipe	None	This is a surface water monitoring point; it monitors the water quality of flow from the southern compartment.	S 27.817046	E 29.966751

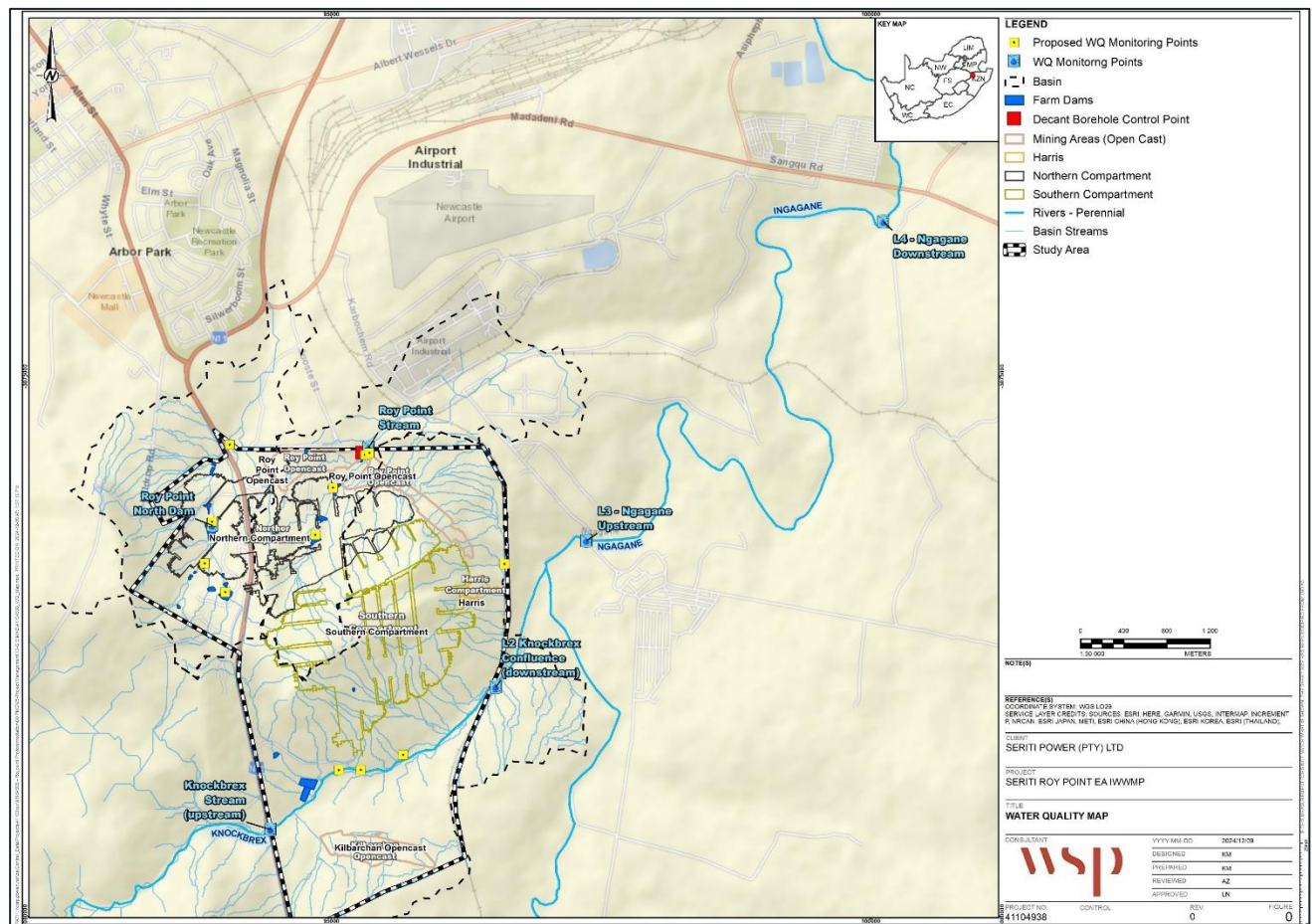


Figure 6-10 – Surface water monitoring points

6.1.6.1 SUMMARY OF SURFACE WATER QUALITY RESULTS

The 95th percentile was used to describe the baseline water quality for parameters of concern from January to May 2024 of the receiving environment before implementing the proposed long-term water management measures. However, for a nutrient parameter like orthophosphate, the 50th percentile was considered. These parameters were benchmarked against the RQOs WQPL applicable to the Ngagane River catchment from Ntshingwayo Dam to the confluence with Buffalo (i.e. quaternary catchments V31G and V31K). The results and exceedances of the RQOs and WQPLs are summarised in **Table 6-3**. From the sampling results, the following observations are made:

Generally, the water quality results for the rivers indicate that the receiving surface water resources (i.e., Knockbrenn Stream upstream of the mine, L3 – Ngagane upstream, and Roypoint North Dam) show general compliance to the WQPL/RQO, with minimal exceedances observed for a few parameters. However, the Roy point pipe, representing water quality from the Southern Compartment at the Main Adit has elevated levels for parameters such as Total Dissolve Solids (TDS), Sulphate (SO₄), Calcium (Ca), Sodium (Na), Magnesium (Mg), Electric Conductivity (EC), Ammonia (NH₄), Copper (Cu), Manganese (Mn) and Orthophosphate (PO₄) which exceed permissible limits. Some water quality impact has already reached the Knockbrenn stream (i.e., L2- Knockbrenn stream confluence) and the Ngagane River (i.e., L4- Ngagane downstream) downstream of the Roypoint mining activity. The proposed water management measures are expected to result in discharge qualities within the WQPL/RQO to improve the water quality in the Knockbrenn stream and Ngagane



River over the long term. With long-term water management measures, minimal impact on the receiving catchment water resources is expected.

Table 6-3 - Compliance of water quality against the Receiving Water Quality Objectives/Limits

		pH: (RQO)	Electrical Conductivity (EC)	Total Dissolved Solids (TDS): RQO	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Chloride (Cl)	Sulphate (SO4)	Nitrate (NO3-N)	Flouride (F)	Aluminium (Al): RQO	Iron (Fe): RQO	Manganese (Mn): RQO	Ammonia NH4 as N: RQO	Ortho-Phosphate (PO4): RQO	Cadmium (Cd): RQO	Cobalt (Co): RQO	Copper (Cu): RQO	Nickel (Ni): RQO	Lead (Pb): RQO	Zinc (Zn): RQO
			mS/m	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Ideal			30		10	70	70	25	40	80	6	0.70											
Acceptable		≤ 6.5 ≥ 8.4	50	<350	80	100	92.5	50	120	165	10	1											
Tolerable			85		80	100	115	100	175	250	20	1.5											
Unacceptable			<85		<80	<100	<115	<100	<175	<250	<20	<1.5	≤ 0.105	≤ 0.1	≤ 0.15	≤ 0.0725	≤ 0.05	≤ 0.0012	≤ 0.05	≤ 0.0073	≤ 0.07	≤ 0.0095	≤ 0.002
Knockbrix Stream	95th & (50th PO4) Percentile of 2024 Data	7.68	11.18	106.50	8.55	6.08	6.00	0.87	3.32	12.24	0.352	0.512	0.055	0.050	0.031	0.052	0.039	-0.001	0.001	0.007	-0.001	-0.001	0.001
L2 - Knockbrix Confluence	95th & (50th PO4) Percentile of 2024 Data	8.38	221.87	1790.70	191.48	89.66	252.20	8.17	6.40	991.83	0.337	0.439	0.052	0.065	0.505	0.833	0.139	0.000	0.000	0.077	-0.001	0.000	0.000
L3 - Ngagane Upstream	95th & (50th PO4) Percentile of 2024 Data	7.71	41.15	295.00	23.60	13.67	37.14	3.01	10.95	114.02	0.56	0.33	0.362	0.028	-0.001	0.267	0.087	-0.001	-0.001	0.0205	0.018	-0.001	-0.001
L4 - Ngagane Downstream	95th & (50th PO4) Percentile of 2024 Data	7.81	50.43	372.30	31.51	19.28	46.23	2.9587	14.30	163.28	0.47	0.53	0.173	-0.001	0.008	0.15345	0.21695	-0.001	-0.0001	0.0080	-0.001	0.00245	-0.001
Roy Point North Dam	95th & (50th PO4) Percentile of 2024 Data	8.88	17.03	135.10	16.71	8.05	7.44	2.34	6.80	5.88	0.31	0.71	0.0556	0.3084	-0.001	0.073	0.048	-0.001	0.001	0.040	-0.001	0.0024	0.042
Roy Point Pipe	95th & (50th PO4) Percentile of 2024 Data	7.97	285.90	2464.00	261.47	116.27	371.73	12.47	9.11	1370.01	0.350	0.407	-0.001	-0.001	0.540	1.814	0.095	-0.001	-0.001	0.013	-0.001	-0.001	-0.001

6.1.7 HYDROGEOLOGY

The hydrogeology is conceptualised based on the previous reports, borehole logs (where supplied), available baseline information and updated following the hydrocensus assessment of water levels, topographic contours and the depth to coal floor. The water table depth varies 0.9 – 38.4 mbgl (based on hydrocensus results) (R267 Hydrogeological Report, WSP, 2025).

Schematic cross-sections through the mine area are presented as follows:

- **Figure 6-11:** Map indicating where the cross sections are located.
- **Figure 6-12:** North to South cross section.
- **Figure 6-13:** West to East cross section through the northern compartment.
- **Figure 6-14:** West to East cross section through the southern compartment.

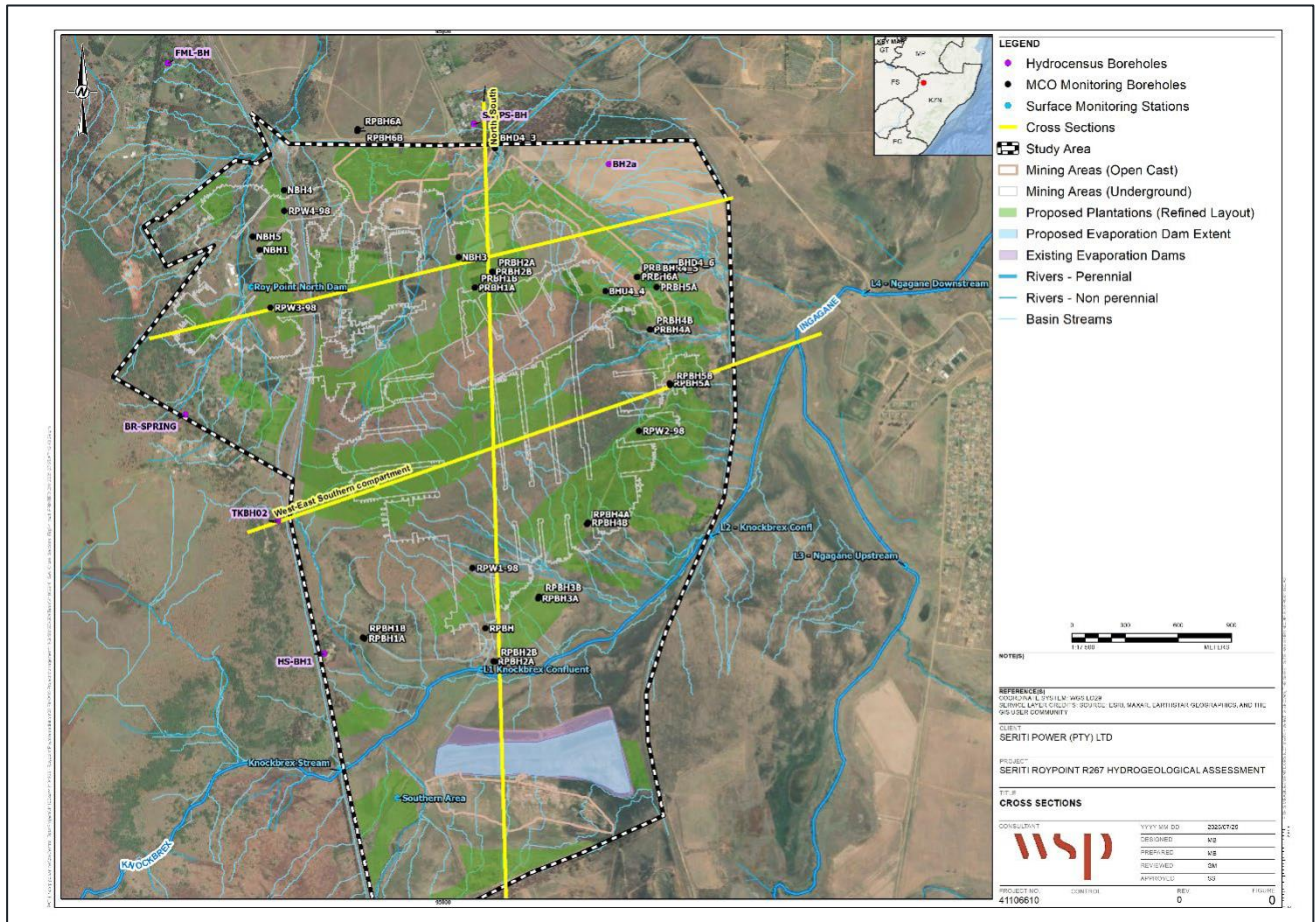


Figure 6-11 – Map indicating cross section paths

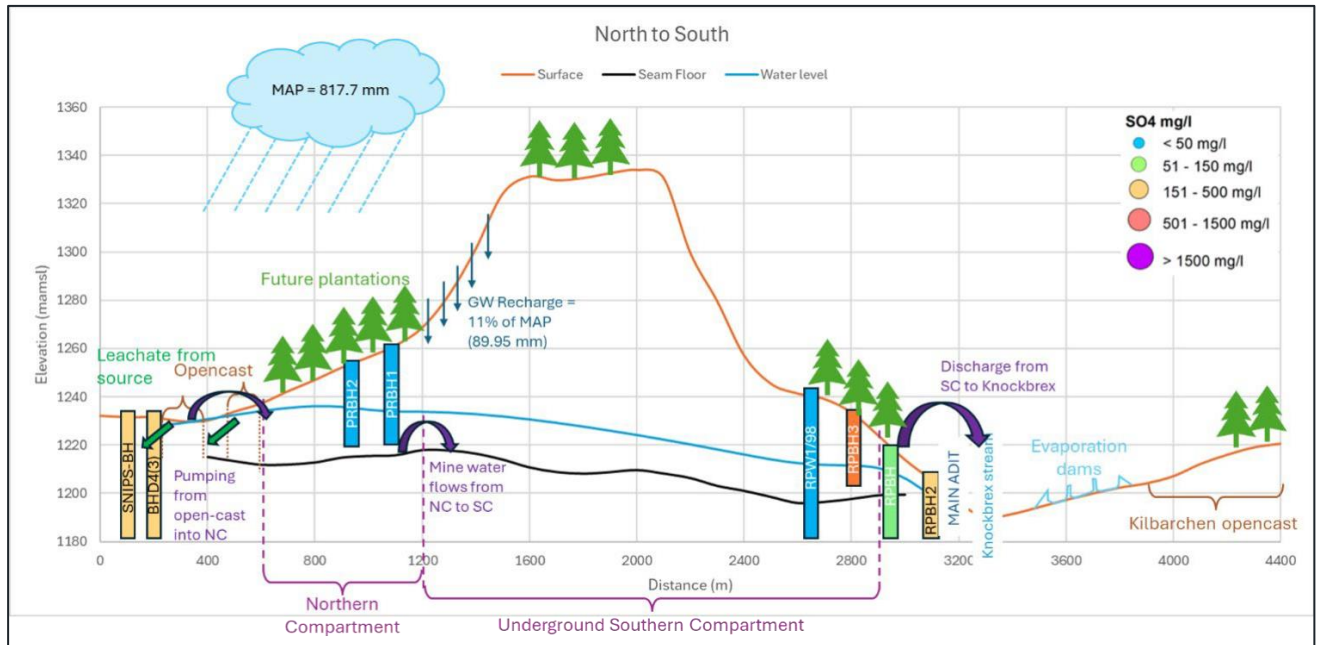


Figure 6-12 – North to South cross section

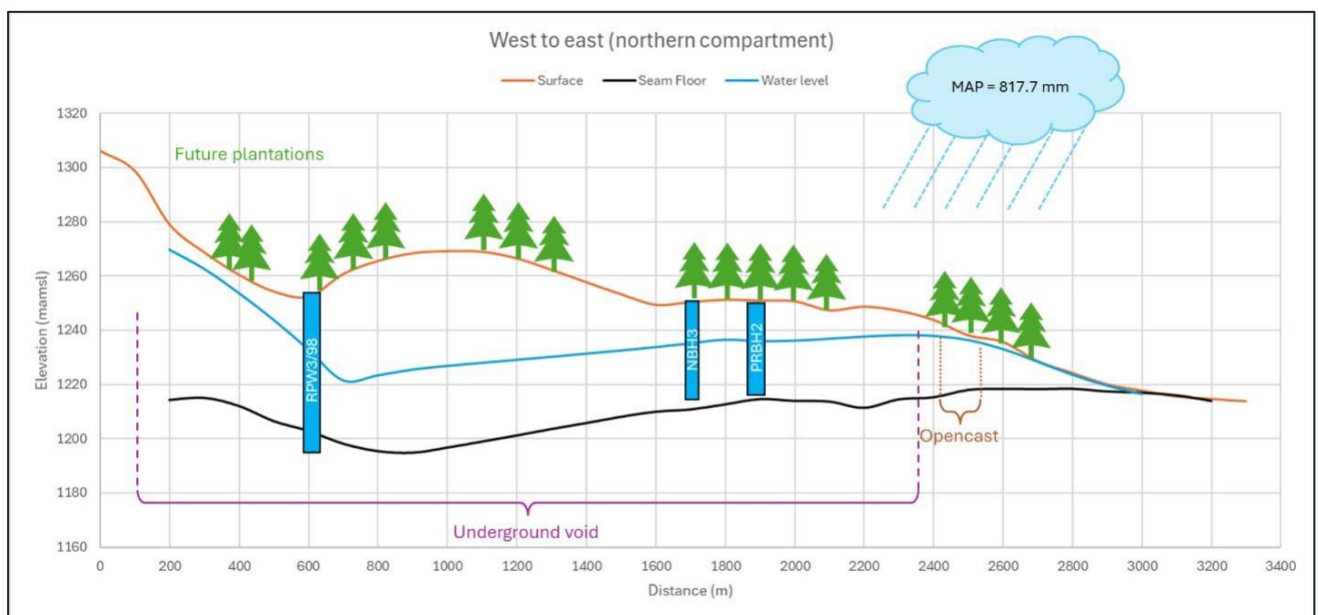


Figure 6-13 - West to East cross section through the northern compartment

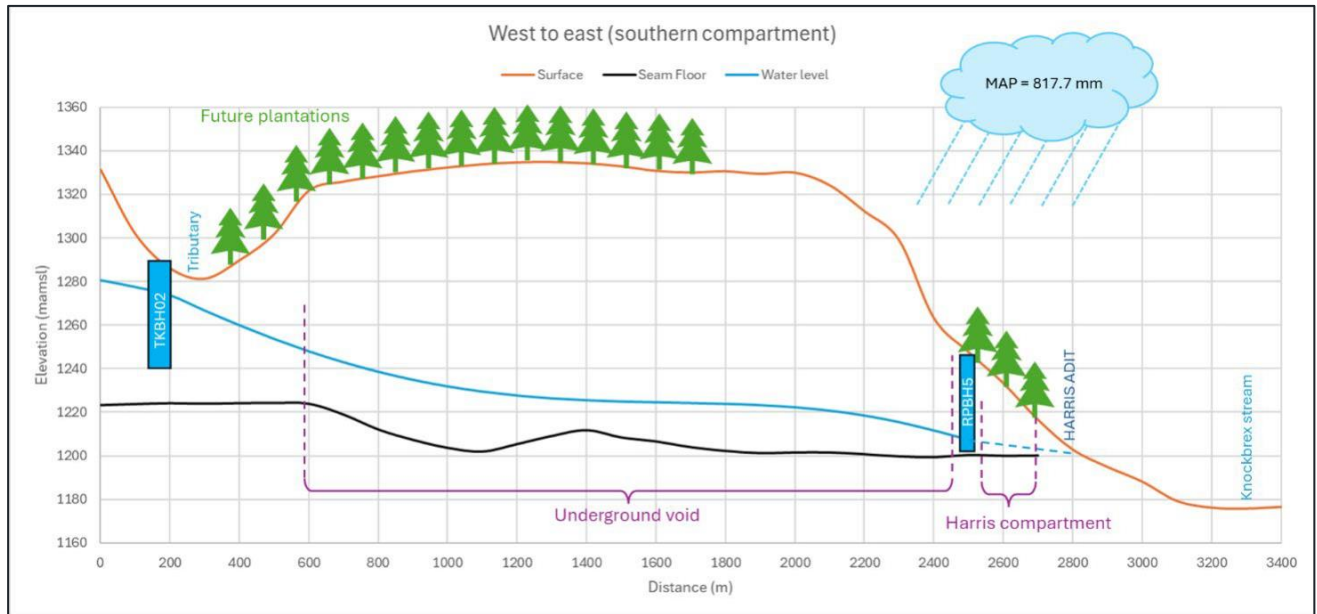


Figure 6-14 - West to East cross section through the southern compartment

6.1.7.1 Unsaturated Zone

The unsaturated zone is described as the zone above the water table with surface soils described in more detail in the Section 6.1.6 below. The unsaturated zone is on average around 12 mbgl. Calcrete is evident on surface to the east of the Roy Point area.

6.1.7.2 Saturated Zone

Mining has resulted in open voids where water is now accumulated in either the Northern or Southern Compartment where the Northern Compartment has been flooded since 2003 (GCS, 2018). The aquifers are conceptualised as:

- Shallow discontinuous and typically low yielding (<0.03 l/s) zone within weathered Ecca sediments and overburden at 5 to 15 m below surface with water levels at < 12 mbgl. It is noted that dolerite is observed near surface in only two of the boreholes (RPBH1 at around 8 - 9 m and RPBH4 at surface).
- Regional intermediate aquifer and/or fractured rock aquifer associated with the fractured sandstone and siltstone of the Karoo sedimentary rocks and occurring along bedding planes, dykes and fault zones and reaching a depth of approximately 50 to 70 m with yields of between 0.03 and 1.7 l/s and water levels typically > 12 – 36 mbgl. The mining compartments recharge the regional aquifer with springs daylighting on the coal seam.
- Previous hydrogeological reports (Mine Closure Operations (2005) as cited by GCS (2013) and GCS (2018) conceptualise a third alluvium zone, which occurs along streams and rivers and can be connected to deeper weathered and fractured rocks. However, WSP believes that this is more likely representative of the channel bottom and/or wetlands which are recharged by the seep's daylighting on surface.

6.1.7.3 Groundwater levels

The groundwater levels measured during the Hydrocensus (March and April 2024) were interpolated to create a water level map as shown in **Figure 6-15**. Monthly water level data is recorded by MCO

for selected boreholes into both the mine compartment and the aquifer. Additional data was obtained during the hydrocensus. In general, water levels during the hydrocensus were like those recorded by MCO (time series database, **Figure 6-16**). The surface elevation was confirmed for most points by the survey and corrected. Water levels could not be compared for the plantation trial boreholes and others not included in the MCO database and water levels in pumping boreholes were assumed to be c. 5 m below topography (unconfirmed).

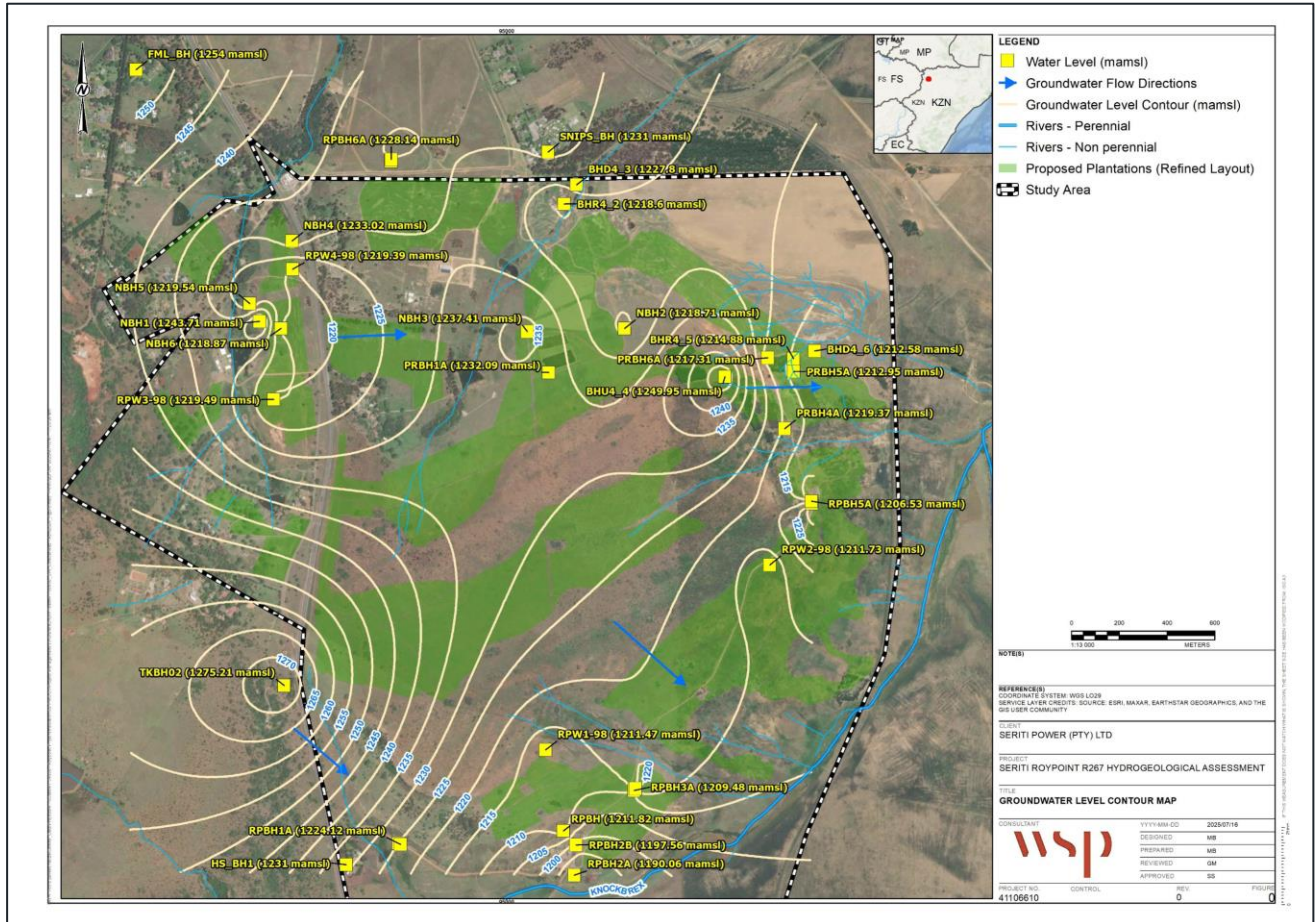


Figure 6-15 - Groundwater levels measured during the Hydrocensus (March, April 2024) including inferred water level contours

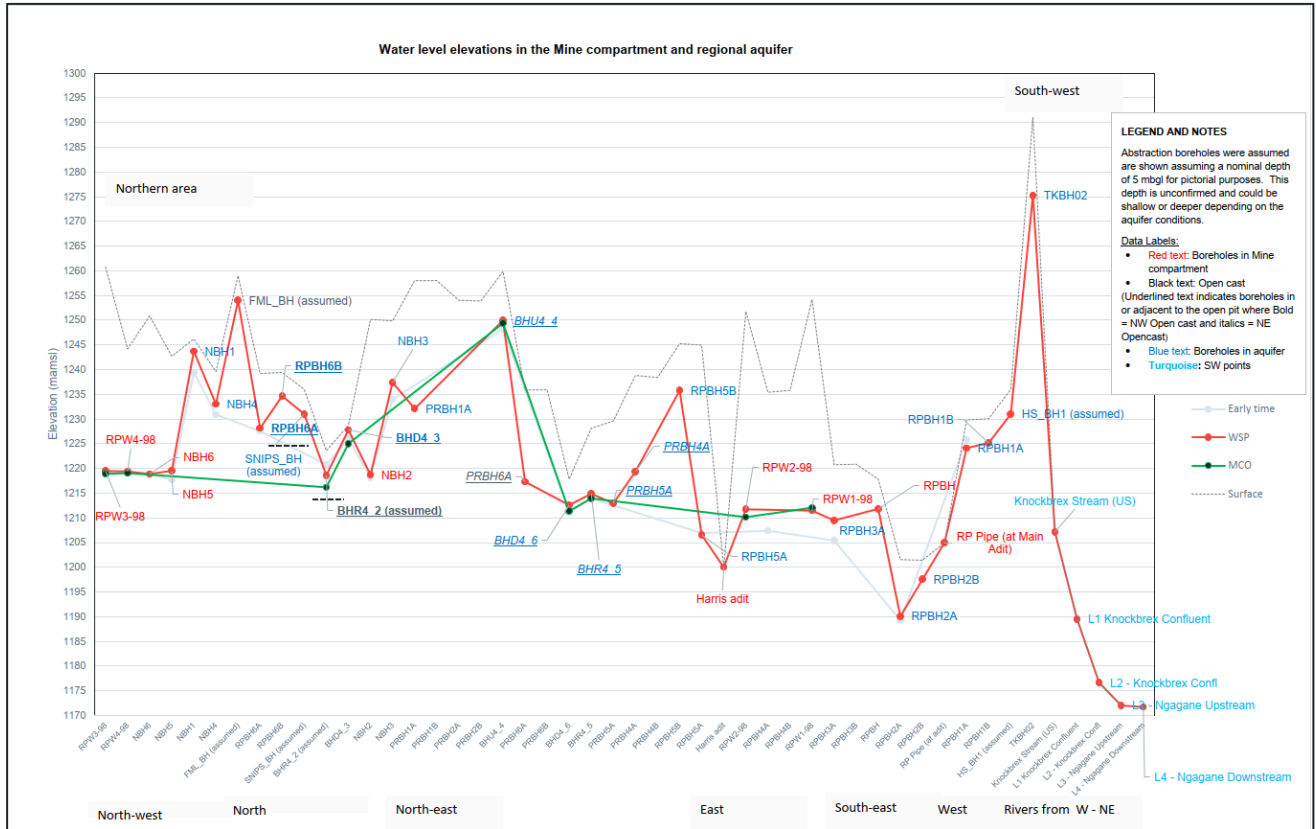


Figure 6-16 - Water level elevation in boreholes across the site (as recorded during the hydrocensus or estimated based on MCO data for the same time period as the hydrocensus)

6.1.7.4 Decants and Seeps

The Harris Adit and Main Adit (if not controlled through current management) are identified as areas of decant from the historical compartment. Several seeps (indicated in **Figure 6-17**), along the coal sub-outcrop, were identified as being potentially present to the south-east by GCS in 2020 and AGES, 2011, but these were not observed during the hydrocensus. The seep identified near the rehabilitated open pit (BHR4_2) was decanting in April 2023 before a pump was installed in the borehole. Based on the MCO time series record, water levels fluctuated between 0 and 0.35 mbgl from May 2022 until August 2023 when the monitoring record stops, following the installation of the pump.

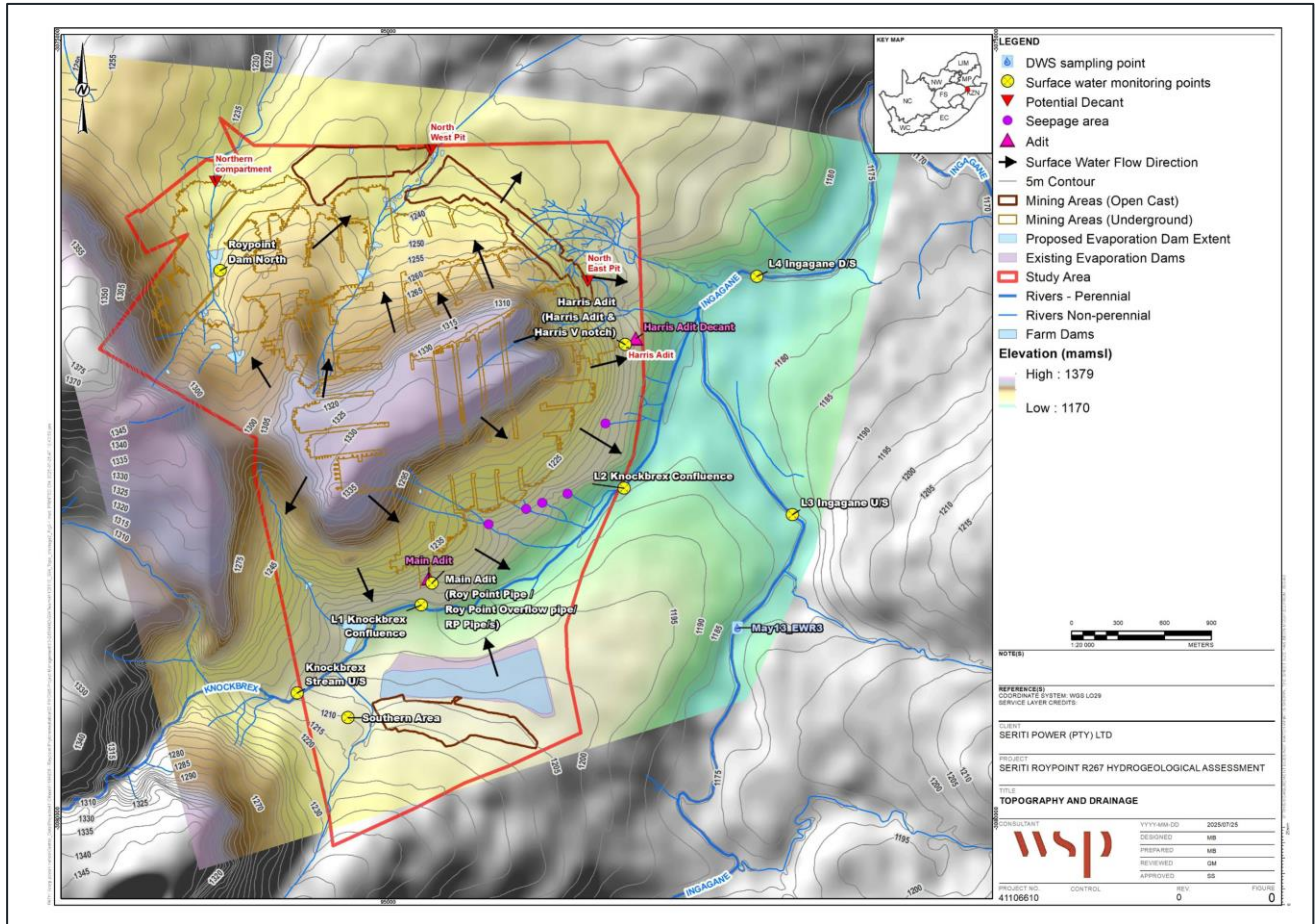


Figure 6-17 - Shallow seeps and decant

6.1.7.5 Mine Compartment

The Northern Compartment is flooded, and the Southern Compartment maintained at 1214 mamsl to avoid uncontrolled decant through the Main Adit.

The water levels have remained stable in the Northern Compartment within around 1 – 2 m at an elevation of around 1216.3 mamsl (July 2023) and 1214.2 mamsl (March 2023) for the remaining boreholes (RPW3-98, RPW4-98 and NBH5). Consistent variability of up to 10m between both RPW1-98 and RPW2-98 (around 1211.6 mamsl) is noted due to the controlled discharges. RPBH, located some 150 m above the Main Adit, is at a similar elevation of 1212.02 mamsl in March 2024.

6.1.7.6 Regional Aquifer

The following is inferred from the water level depth as compared to the topographic surface indicated in **Figure 6-16**:

- Water levels are shallower (nearer the topographic surface):
 - In boreholes located within the aquifer above the north-western portion of the northern compartment in NBH1 and NBH4;
 - In/near the NW rehabilitated open cast area in RPBH6A&B, BHR4_2 and BHD4_3 (artesian) and;
 - Locally in BHU4-4 (upgradient of NE rehabilitated open cast).

- Conversely water levels are deeper as compared to the topography in boreholes located:
 - Above the north-eastern portion of the Northern compartment in NBH3, PRBH1A and PRBH2A & B (dry); and
 - Around the north-eastern rehabilitated open pit (PRBH6A, BHR4-5, PRBH4A, RPBH5B).
- RP-BH6 (located on the northern boundary), BHR4-2 and BHD4_3 (north-east of the rehabilitated open pit) and RPBH1 (south-west and upgradient of the Roy Point mine) are at a higher elevation (> 1224 – 1230 mamsl) as compared to the boreholes to the south-east and southern portion of the Study area.
- The lowest elevation (1190 mamsl) is in borehole RPBH2 near the Main Adit.

The deeper water levels in boreholes located above or near the underground compartments implies that there is a connection with the underground compartment particularly in the northwestern portion of the Northern Compartment, the Southern Compartment and around the north-eastern rehabilitated open cast area resulting in deeper water levels in these areas with the converse implied around the north-western rehabilitated open cast area.

Boreholes drilled to monitor the plantation trial plots (PRBH4B, PRBH1B, PRBH2A&B and PRBH6) were dry (water level >10m). Whilst this could not be confirmed without the initial water level data, this implies that water levels have been reduced in the vicinity of the trial plots.

6.1.7.7 Data Trends

Water level trends (2016 to 2024) in boreholes located in the regional aquifer above and adjacent to the northern compartment in the V31J catchment (NBH1 and NBH4) and NBH3 (northern compartment in A31K) were analysed. As in the northern compartment, water levels are at a higher elevation as compared to the other boreholes in the Roy Point Study area and higher (>1230 mamsl) than in the northern compartment (<1220 mamsl).

A long-term increasing trend is observed in NBH1 and NBH3 while water levels are generally more stable in NBH4. The hydrocensus points BR Spring is in the upper reaches of the V31J catchment with FML-BH downgradient of the mine.

The water level trends (2020 to 2024) for selected boreholes located in the regional aquifer in the V31K catchment were analysed. Water levels are highest in NBH3 The water level presents as three groupings:

- Most of the boreholes demonstrate an increasing trend over the time series without obvious peaks and troughs associated with a seasonal response to rainfall.
- Water levels were much lower in May 2024 in BHD4-3. If confirmed, this could be due to the cone of depression at the pumping borehole (BHD4-3), also noting that the SNIPS borehole to the north is also used for water supply.
- The trend graphs for boreholes located to the east of the southern compartment, RPBH5 (before it was blocked), RPBH4 and RPBH3 seem to follow a generally similar trend although higher water levels are noted in RPBH3.

6.1.7.8 Groundwater quality

Ambient water quality and reserves

Borehole RPBH1 is similar to near ambient water quality. The shallow and deep regional aquifer at RPBH1 can be regarded as having good water quality (Class 0 to Class1). The shallow aquifer is classed as Class 1 due to iron concentrations being at 0.473 mg/l during the hydrocensus. The deep aquifer is classed at Class 0 during the hydrocensus with the 95th percentile being at Class 1 due to fluoride concentrations of 0.7 mg/l similar to that observed in the ambient water quality for V31J.

Water quality is similarly of good quality for the census boreholes located to the west of the mine (HS-BH1, BR-Spring and TKBH02) although EC in TKBH02 is comparatively slightly elevated as compared to the other results.

Mine Compartments and Decants

The Northern Compartment quality is represented by RPW3-98, RPW4-98 and historically NBH2 and NBH6. The southern compartment water quality is represented by the Main Adit sampling points RPBH, RPW1-98 and RPW2-98. Water is classed from Class 0 (Ideal) to Class 4 (unacceptable for use).

Based on the EC, TDS and sulfate concentrations (2024 data, median and 95th percentile) and metal results, concentrations are generally highest in the Harris compartment (median TDS of 4,076 mg/l), surrounding the rehabilitated open pits and in the Southern compartment. The data ranges for water quality in potential source areas is as follows:

- The pH is circum-neutral with only RPBH2A being slightly acidic at 5.3 pH units. The pH of all the remaining monitored sampling points is generally near neutral.
- The Harris compartment water quality is generally of unacceptable water quality, with Class 4 water quality often being due to exceedances in TDS, sulfate and magnesium.
- Boreholes occurring near the rehabilitated northern open cast area are generally of moderate to unacceptable water quality. From the hydrocensus data, the shallow aquifer at RPBH6 is classed as Class 1 due to the pH being 5.9 pH units. The deeper aquifer was found to be of Class 0 during the census, although the MCO monitoring data shows the 95th percentile as being Class 1 due to iron (0.5 mg/l). BHD4_3 was found to be of Class 2 water quality from the census data due to sulfate (410 mg/l), magnesium (79 mg/l) and iron (0.73 mg/l), however, the MCO monitoring data's 95th percentile shows a Class 3 water quality due to sulfate (611.9 mg/l) and magnesium (125.6 mg/l). BHR4_2 shows a 95th percentile of Class 4 water quality due to TDS (3919.8 mg/l) sulfate (2290.3 mg/l), magnesium (425.5 mg/l) and manganese (12.43 mg/l).
- Boreholes occurring near the rehabilitated north-eastern open cast area are generally of unacceptable water quality. The hydrocensus data shows Class 4 water quality due to magnesium and manganese at PRBH6A (356 mg/l and 8.04 mg/l respectively) and PRBH5A (340 mg/l and 9.38 mg/l respectively). BHR4_5 is also Class 4 water quality due to magnesium (247 mg/l) with the 95th percentile also being Class 4 due to magnesium (282.6 mg/l). Salinity is higher downgradient of the rehabilitated open pits, both the northern most and north-eastern pits. For example, EC is lower upgradient (10.5 mS/m in BHU4_4) of the open cast as compared to downgradient boreholes (EC of 165 mS/m in BHR4_5, 327 mS/m in PRBH6A and 296 mS/m in PRBH5A). Similarly, concentrations increase from 20.8 mS/m in NBH3 to 255.5 mS/m in BHR4_2 with concentrations comparatively elevated in the SNIPS BH (EC of 63 mS/m) and TDS of 478 mg/l).

- The southern compartment water quality is generally of unacceptable water quality. The census data and MCO monitoring data's 95th percentile shows RPW1_98 and RPBH as Class 0 water quality. The census data also shows RPW2_98 as Class 2 water quality due to TDS (1004 mg/l) and sulfate (494 mg/l). The MCO monitoring data's 95th percentile shows RP Pipes as having Class 4 water quality due to sulfate (1998.4 mg/l) and magnesium (201.8 mg/l).
- Boreholes drilled into the northern compartment mine compartment are generally of good water quality classed as Class 0 to Class 1. The census data for RPW3_98 shows Class 0 water quality, with the MCO monitoring data's 95th percentile showing Class 1 due to fluoride (0.83 mg/l) and sodium (117.06 mg/l). The census data for RPW4_98 also shows Class 0 water quality, however, the MCO monitoring data's 95th percentile shows Class 1 water quality due to manganese (0.444 mg/l). NBH5 was classed as Class 0 from the census data.

Regional Aquifer

- Boreholes drilled into the aquifer overlying the southern compartment are generally of moderate to unacceptable water quality. These include PRBH4, RPBH5, RPBH4, RPBH3, and RPBH2. PRBH4A, RPBH5A, and RPBH2A are classified as having Class 2 water quality due to magnesium (74 mg/l), iron (0.55 mg/l) and manganese (1.49 mg/l) respectively from the census data. The 95th percentile from the MCO monitoring data shows Class 4 water quality at RPBH5 due to sulfate (2969.1 mg/l) and magnesium (226.2 mg/l). The MCO monitoring data classifies RPBH3 as having Class 3 water quality due to sulfate concentrations of the 95th percentile being at 871.2 mg/l. RPBH2 is also classed as Class 4 due to the 95th percentile having exceedances in sulfate (2021 mg/l) and manganese (14.95 mg/l).
- Boreholes drilled into the aquifer overlying the mine compartment in the northern compartment generally have Class 0 to Class 1 water quality. These include NBH1, NBH4, NBH3, PRBH1A, and BHU4_4. NBH1 and PRBH1A are classed as Class 1 due to iron (0.218 mg/l) and magnesium (33 mg/l) respectively, with the remaining boreholes having Class 0 water quality from the hydrocensus. The MCO monitoring data shows a Class 1 water quality for the 95th percentile at BHU4_4, this is due to fluoride (0.78 and manganese (0.46 mg/l).

The hydrocensus groundwater points are generally of good water quality being from Class 0 to Class 1. BR_SPRING and HS_BH1 are classified as Class 0. FML_BH, SNIPS_BH and TKBH02 are Class 1 due to iron (0.406 mg/l).

6.1.8 HYDROPEDOLOGY

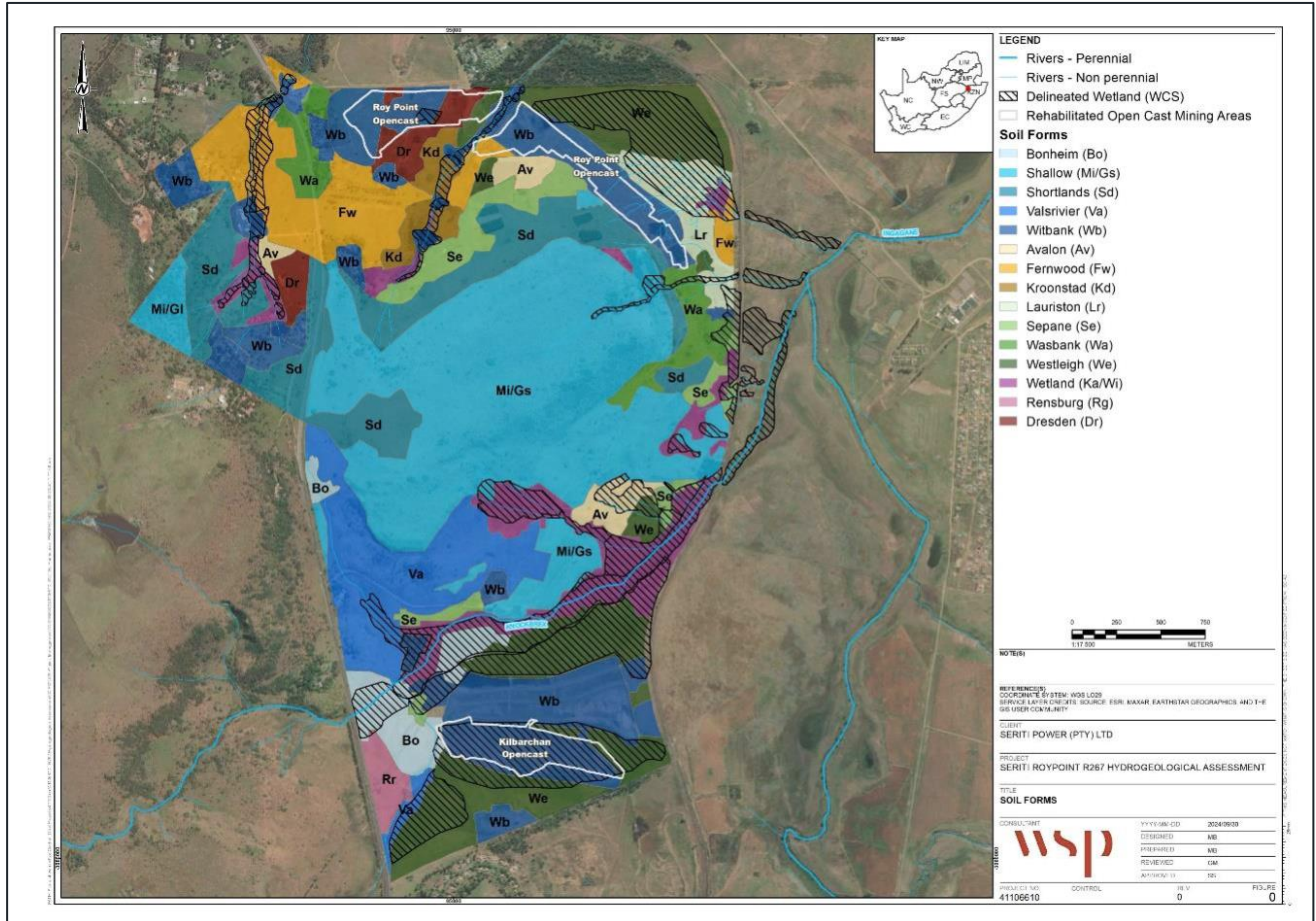
Jones & Wagener (2017) conducted a hydrogeological study to quantify the hydrological impact resulting from the interception of baseflow to the rivers by the proposed plantation. Jones & Wagner concluded the following:

- Seepage on the hillslope down-gradient of the southern underground workings contributes 38 000 m³/a of baseflow to the Knockbex stream.
- The infiltration rate was measured using the double ring method. The results from 15 profiles varied from 0.8 to 16 cm/hr (0.19 – 3.84 m/d).
- An evapotranspiration model was developed to predict the impact of the future plantations on the surface streams and concluded that base flow depletion will take place. It was estimated that the groundwater level in the vicinity of the Knockbex stream will be lowered by 4 – 10 m. Note that the Jones & Wagener (2017) modelled plantation area was 148 ha compared to the latest proposed area of 413 ha).

- This reduction in baseflow will likely cause the wetland along the Knockbrev stream to be unsustainable.

6.1.8.1 Pedological Classification

Vedure (2024) conducted a soil survey of the entire Roy Point study area. The soil forms identified is illustrated in the figure below.



6.1.8.2 Hydropedological soil type classification

In South Africa, hydropedological classification of soils are based on defining the hydrological function of soils within a hillslope (van Tol et al., 2013). The pedological soil forms are typically associated with soil water regimes. The soil form along with the soil hydromorphic signatures and can be used to infer soil water flow dynamics. The pedological soil forms are categorised according to their hydropedological function in a hillslope (Job and Le Roux, 2019). This classification is used to define hydropedological response units as defined in **Table 6-4**. The soil forms that are present in the study area are printed in bold in the table. Note that the Lauriston soil form is not included in **Table 6-4** but it was used as an interflow response unit.

Table 6-4 – Hydropedological soil types

Hydropedological response unit	Description (van Tol et al., 2013)	Associated soil form (Job and Le Roux, 2019)
Recharge	Soils without any morphological indication of saturation. Vertical flow through and out of the profile into the underlying bedrock is the dominant flow direction. These soils can either be shallow on fractured rock with limited contribution to evapotranspiration or deep freely drained soils with significant contribution to evapotranspiration.	Kranskop, Magwa, Inanda, Lusiki, Sweetwater, Bonhein , Inhoek, Constantia, Tsitikamma, Concordia, Houwhoek, Griffin, Clovelly, Hutton, Shortlands , Pinegrove, Groenkop, Valsriver , Swartland, Dundee, Namib, Nomanci, Mayo, Milkwood, Jonkershoek, Glenrosa , Mispah , Witbank
Interflow (A/B)	Duplex soils where the textural discontinuity facilitates buildup of water in the topsoil. Duration of drainable water depends on rate of ET, position in the hillslope (lateral addition/release), and slope (discharge in a predominantly lateral direction).	Kroonstad , Longlands, Wasbank , Klapmuts, Vilafontes, Kinkelbos, Cartref
Interflow (soil/bedrock)	Soils overlying relatively impermeable bedrock. Hydromorphic properties signify temporal build of water on the soil/bedrock interface and slow discharge in a predominantly lateral direction.	Lamotte, Fernwood , Westleigh, Avalon , Pinedene, Bainsvlei, Bloemdal, Witfontein, Sepane , Tukulu, Montagu
Responsive (shallow)	Shallow soils overlying relatively impermeable bedrock. Limited storage capacity results in the generation of overland flow after rain events.	Nomanci, Arcadia, Mayo, Milkwood, Glenrosa, Mispah
Responsive (saturated)	Soils with morphological evidence of long periods of saturation. These soils are close to saturation during rainy seasons and promote the generation of overland flow due to saturation excess.	Champagne, Rensburg , Willowbrook , Katspruit
Stagnating	Soils where outflow of water is restricted or limited, and have morphological signatures which indicate that neither recharge nor interflow are dominant.	Steendal, Immerpan, Dresden , Glencoe, Molopo, Askham, Kimberely, Plooyburg, Garries, Etosha, Gamoep, Oudtshoorn, Addo, Prieska, Trawal, Augrabies, Brandvlei, Coega, Knersvlakte

Roy Point consists of 62% recharge soils (of which 3% are in built-up areas), 29% interflow soils, 7%

responsive soils, and 2% stagnating soils.

The soil analysis conducted for the future forestry area showed that the area covers:

- Recharge soils: 55%
- Interflow soils: 42%
- Responsive soils: 1%
- Stagnating soils: 1%

6.1.9 FLORA

6.1.9.1 KZN Biodiversity Sector Plan

The KwaZulu-Natal Biodiversity Sector Plan (KZNBSP) (2016) provides a spatial framework to identify areas of high biodiversity importance or irreplaceability in the province. Features such as vegetation types, habitats, ecological corridors, fauna and flora assemblages, and presence of SCC, are used to determine the biodiversity importance or irreplaceability of particular land parcels.

A map of the KZN BSP delineations associated with the study area and immediate surrounding landscape is shown in **Figure 6-18**. It is evident that large portions of the study area, as well as patches of the surrounding landscape, are designated as Critical Biodiversity Area (CBA) Optimal.

It is noted however, that based on field observations and a study of aerial imagery, the KZNBSP delineations do not account for certain localised sites that have been modified. Several areas that are either highly disturbed or no longer contain natural habitat (transformed), are currently designated CBA Optimal, including *inter alia*, alien tree stands, portions of the former opencast pits (now rehabilitated grasslands), cultivated fields, miniature golf course, and various sites of built infrastructure (e.g., wedding and function venues and agricultural buildings).

These modified areas and sites are shown in **Figure 6-19**, and are not considered of conservation importance or sensitivity. The remaining areas designated CBA Optimal are however, sensitive and they do contribute to biodiversity conservation in KwaZulu-Natal. These areas should be avoided by proposed project activities (Terrestrial Biodiversity Report, Hawkhead Consulting, 2025).

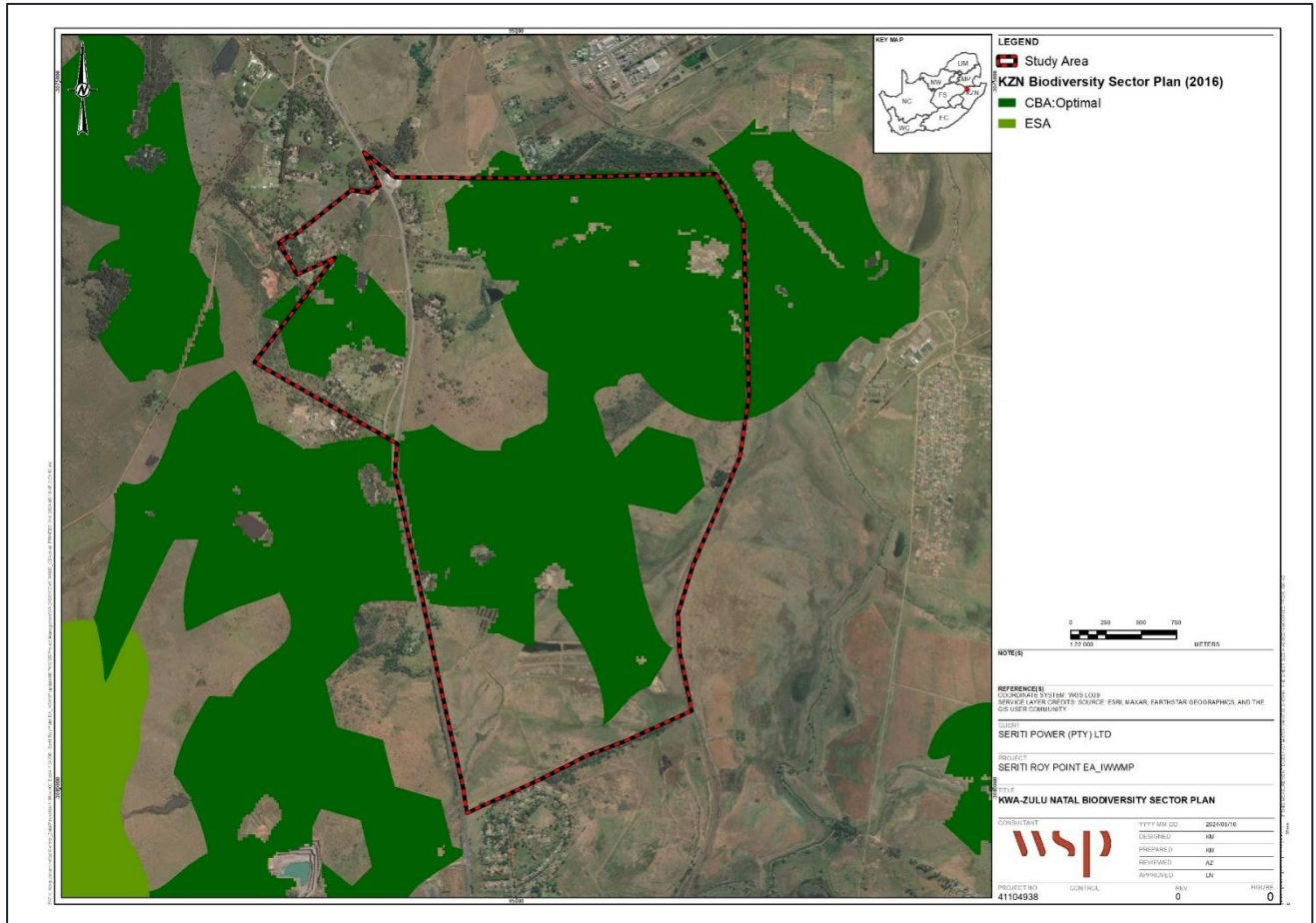


Figure 6-18 - Study area in relation to the delineations of the KwaZulu-Natal Biodiversity Sector Plan (2016)

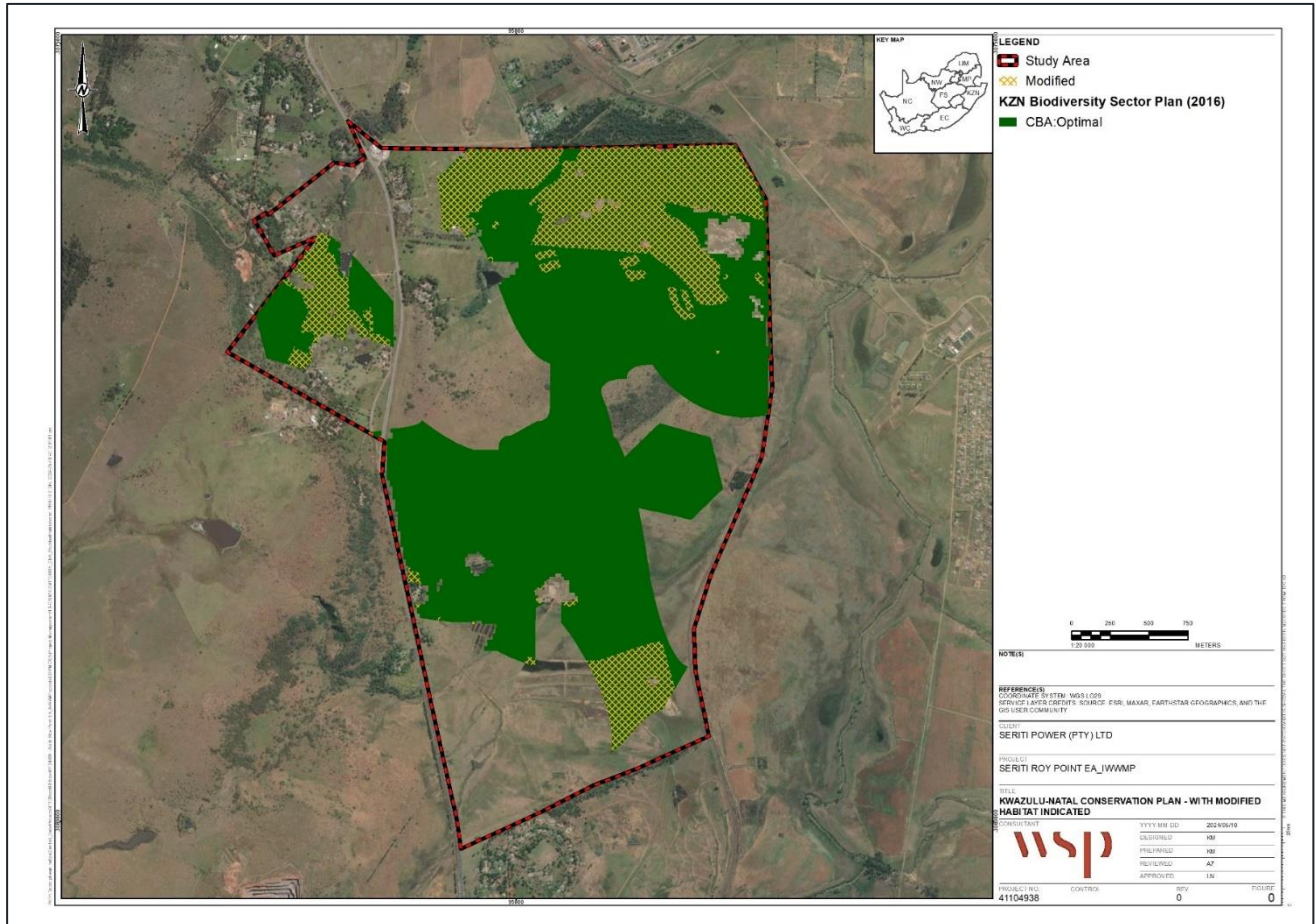


Figure 6-19 - Map showing the patches of CBA Optimal land that have been modified by various anthropogenic activities

6.1.9.2 Vegetation Types

The study area is located in the Grassland Biome but contains elements of savanna. According to SANBI's regional mapping of South Africa's vegetation types (2018), the prevailing vegetation types are KwaZulu-Natal Highland Thornveld and Northern KwaZulu-Natal Moist Grassland (**Figure 6-20**). The KZN provincial vegetation map indicates the additional presence of a small area of Eastern Temperate Freshwater Wetlands in the south of the study area (Terrestrial Biodiversity Report, Hawkhead Consulting, 2025).

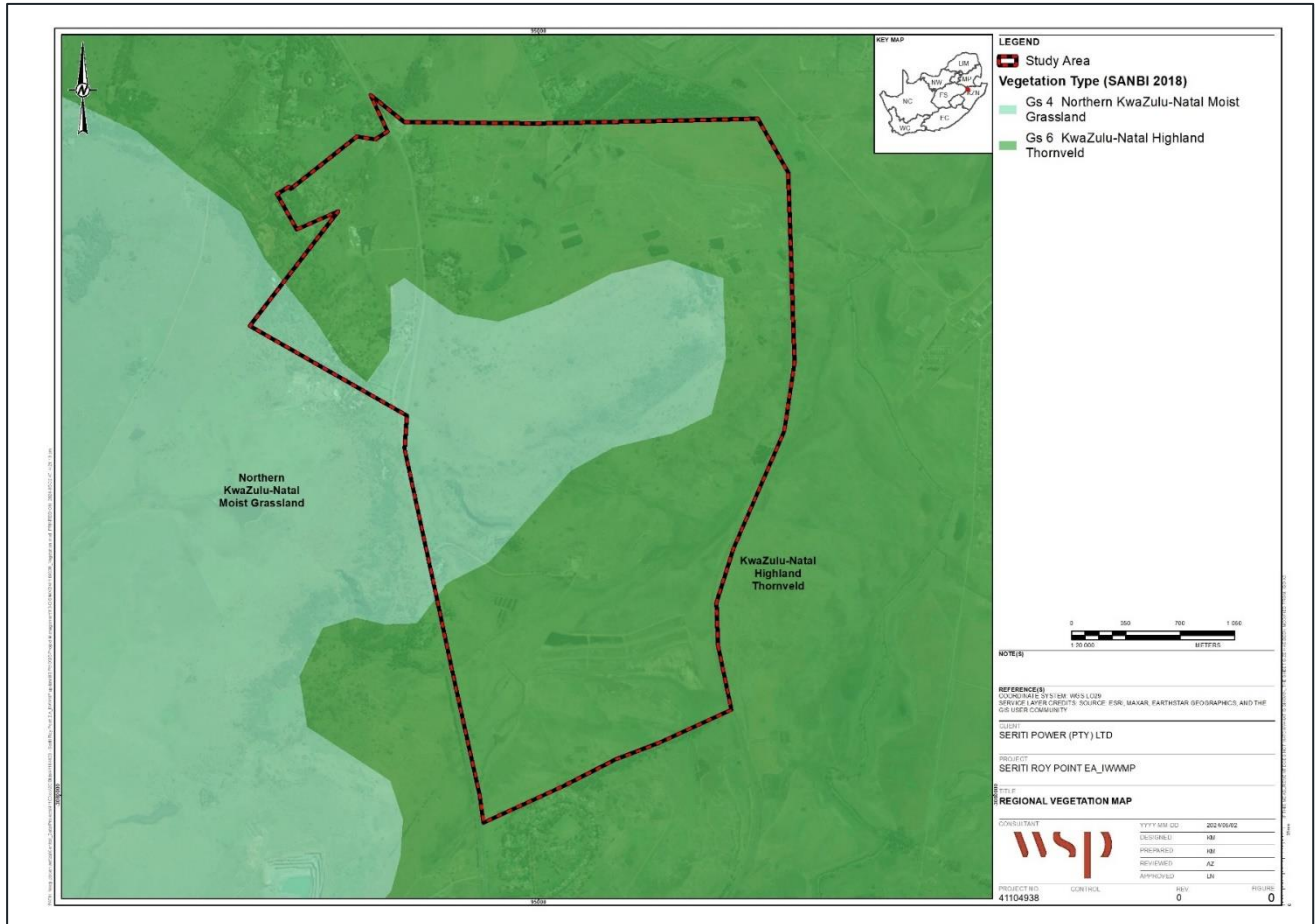


Figure 6-20 – Study area in relation to the SANBI (2018) regional vegetation types

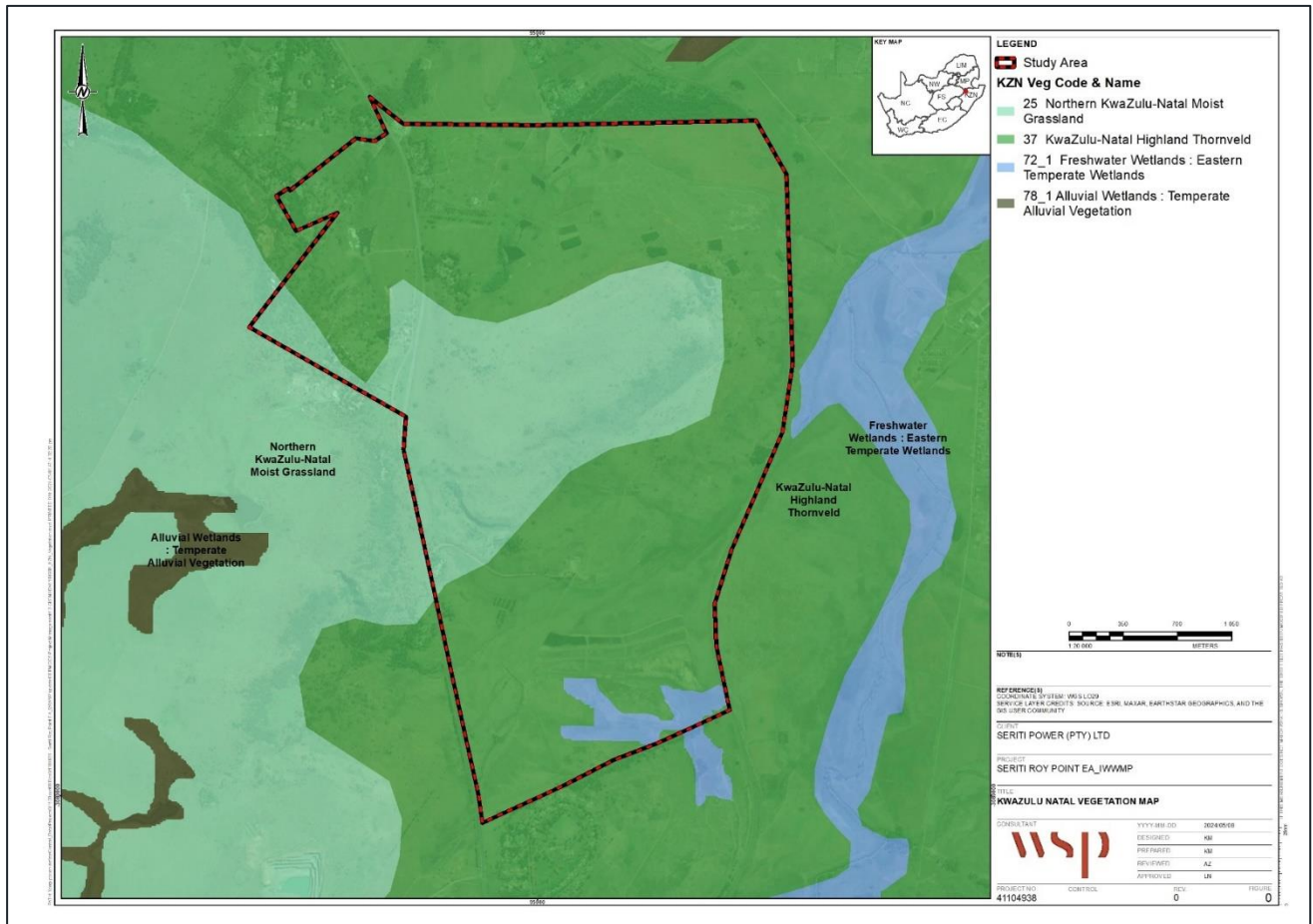


Figure 6-21 – KwaZulu-Natal provincial vegetation map and the study area

6.1.9.3 Habitat units

Habitat unit descriptions are based on a combination of floristic composition, vegetation structure and disturbance characteristics. The following broad habitat units were identified in the study area during the field visit:

- **Secondary and Disturbed Grasslands** - Large portions of the study area are characterised by rehabilitated and/or disturbed grassland habitat that are characterised by a secondary vegetation community. These grassland areas have been subject to manifold anthropogenic activities in the past and are therefore variable. Included in this unit are the old opencast pits, that have been actively rehabilitated, as well as areas of grasslands that have been subject to disturbances, including former cultivation, heavy livestock grazing, earth works and erosion.
- **Moist Grassland** - Moist grassland habitat characterises depressions, seeps and other drainage features across the study area. A prominent feature within this habitat unit in the study area is the Knockbrex Stream, which flows on an east-west axis through the centre of the study area, before draining into the Ingagane River. Vegetation structure in moist grassland habitat ranges from low- to tall closed grassland (Edwards, 1983), with woody species typically occurring at low abundances as scattered individual trees and/or shrubs.
- **Dry Mixed Grassland** - This broad habitat unit is highly variable and characterises portions of the study area that have not been subject to significant anthropogenic modification, such as mining

and subsequent rehabilitation. This notwithstanding, disturbance levels in this community do vary at a local scale.

- Mixed *achellia sieberiana* var. *woodii* Bushveld - This habitat unit occurs on the rocky hills and hillsides in the centre and western corner of the study area and typically grades into areas of Dry Mixed Grassland.
- Transformed and Degraded Sites - This habitat unit refers to the numerous sites in the study area that have been permanently and/or are currently transformed or highly modified by anthropogenic activities. These sites include cultivated fields, alien tree stands, built infrastructure and associated landscape features and existing mine facilities.

A habitat unit map for the study area is shown in the figure below.

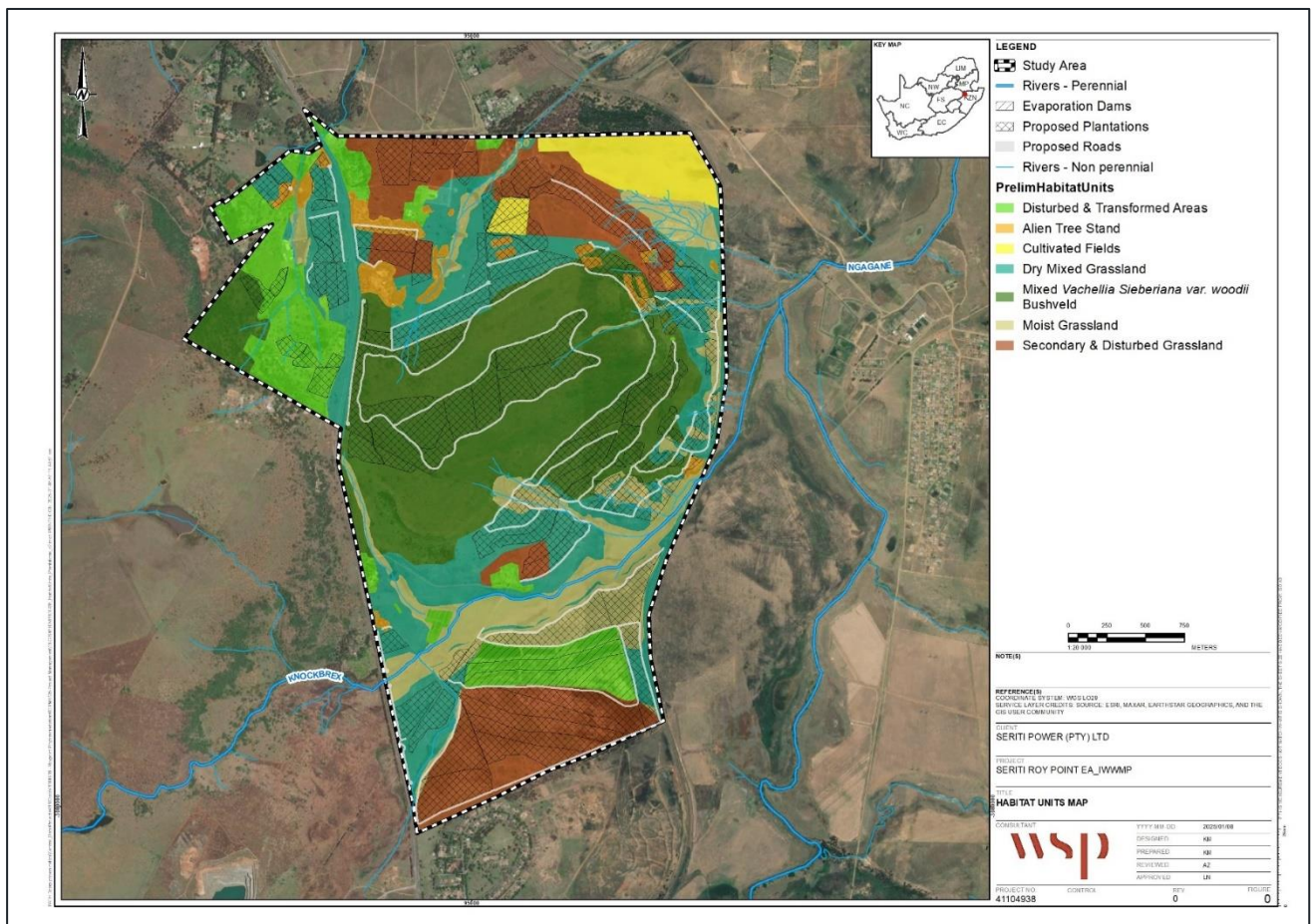


Figure 6-22 - Habitat unit map of the study area with proposed infrastructure.

6.1.9.4 Floral Species of Conservation Concern (SCC)

No threatened or Near Threatened flora species were recorded in the study area during the field survey, although a member of the Amaryllidaceae family was observed on-site. All members of the Amaryllidaceae are Specially Protected at a provincial level, as per the Natal Conservation Ordinance (No. 15 of 1974) (Terrestrial Biodiversity Report, Hawkhead Consulting, 2025).

6.1.10 FAUNA

Eight mammal, 39 bird and two hepetofauna species were recorded in the study area during the 2023 field survey. Of these, one bird species is of conservation concern, namely the Southern Bald Ibis (*Geronticus calvus*).

The Southern Bald Ibis is listed as Vulnerable on both the regional bird Red List (Taylor, *et al.*, 2015) and on the NEMBA ToPS List (2007). A single Southern Bald Ibis was observed foraging in Dry Mixed Grassland habitat in the study area.

Although no mammal, herpetofauna or invertebrate SCC were observed in the study area during the field survey, habitat suitability assessments indicate that several fauna SCC, including a number of Red List birds, potentially occur in the study area and therefore may be impacted by proposed project activities (Terrestrial Biodiversity Report, Hawkhead Consulting, 2025).

6.1.11 ARCHAEOLOGY AND CULTURAL HERITAGE

The Phase 1 Heritage Impact Assessment (Pelser, 2024) for the study area confirmed that no Stone Age sites or material were identified or recorded in the study area during the recent field-based assessment, while a number of Late Iron Age (LIA) stone-walled settlement remains, as well as recent historical graves and grave sites were identified in the area. No other recent historical sites or features were identified. The table below is a summary of the archaeological and cultural heritage features identified within the study area.

Table 6-5 – LIA sites, historic graves and grave sites within the study area

Site Number	Description	Co-ordinates
NCT001	Two modern-style graves located in between trees with rebar around them.	S27° 48' 54.4" E29° 57' 56.0"
NCT002	Rectangular stone kraal 15x7m.	S27° 48' 51.1" E29° 58' 14.3"
NCT003	Eight stone-packed graves found next to a dirt road for vehicles.	S27° 48' 37.5" E29° 58' 20.7"
NCT004	LIA Stone-walled settlement remains overgrown by bushes. Other stone wall foundations can be found on the East side of the dirt road, near the recorded site, that are likely part of the same settlement.	S27° 48' 13.4" E29° 58' 36.1"
NCT005	Four stone -packed graves found against a wall of a structure of the mine as well as a naturally made water drain. Graves could have been disturbed during the construction process or by water erosion.	S27° 48' 10.7" E29° 58' 37.3"
NCT006	Circular stone walling about 10m in diameter likely part of the Late Iron Age. The structure is found halfway up a hill on a flat area.	S27° 48' 01.2" E29° 58' 07.8"
NCT007	Another stone circle about 10m in diameter found at the top of a hill.	S27° 48' 23.4" E29° 58' 08.8"

Site Number	Description	Co-ordinates
NCT008	Circular stone walling 10m in diameter found halfway up a hill.	S27° 48' 46.4" E29° 57' 50.7"
NCT009	Two stone-packed graves found near NCT008. It is not clear whether they are related, but no other structures are nearby.	S27° 48' 49.4" E29° 57' 53.7"

6.1.12 PALAEOLOGY

According to the DFFE Screening Tool, the project site is located within an area of very high palaeontological sensitivity, however given that the site is a defunct mine, the very high sensitivity is refuted since the mining operations on the site would have resulted in the alteration of the palaeontological landscape.

According to the specialist site verification undertaken in October 2023, no fossils were identified on site.

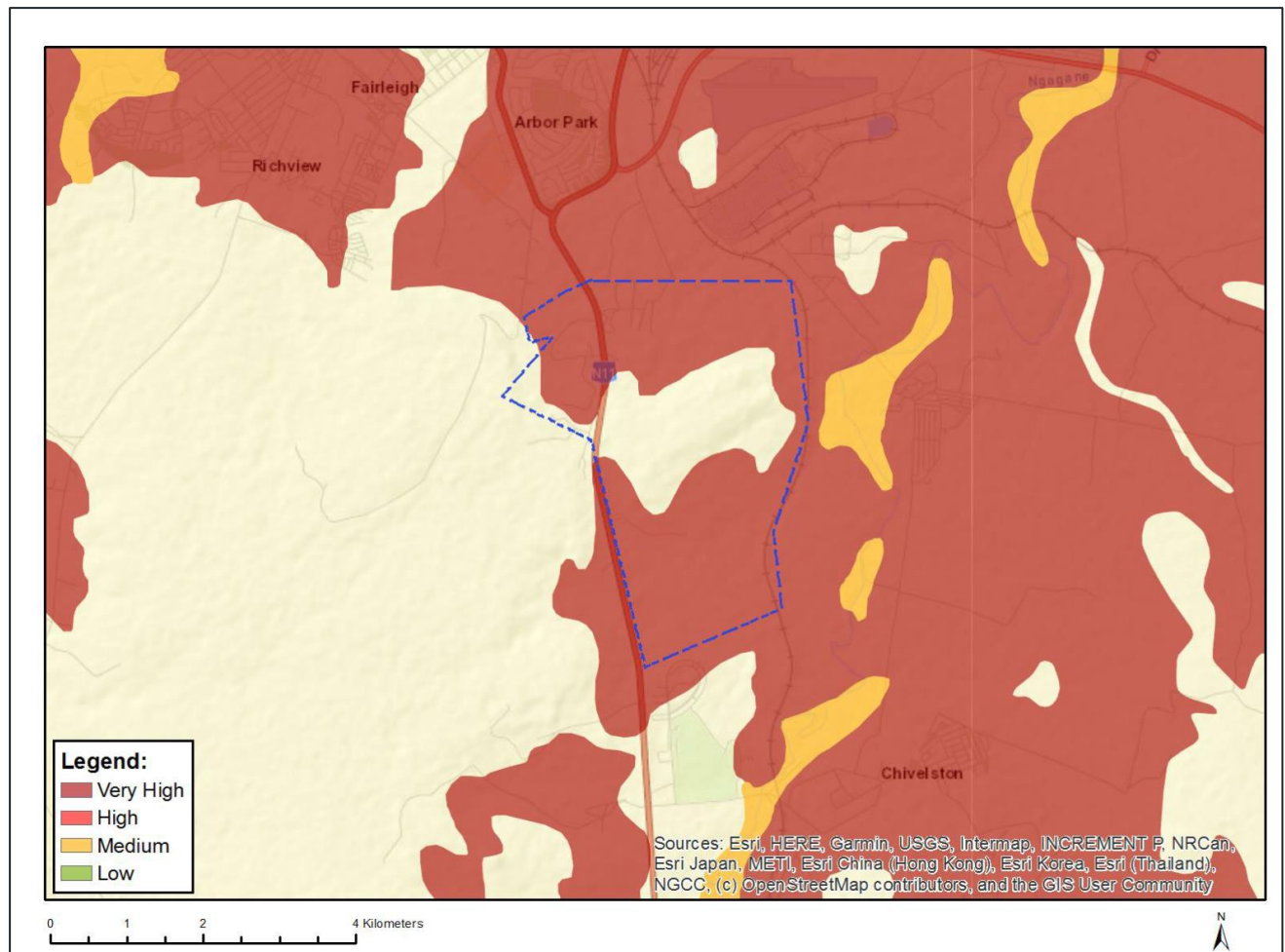


Figure 6-23 – DFFE Screening Results for Palaeontology

6.1.13 SOCIO-ECONOMIC

6.1.13.1 Demographics

Newcastle Local Municipality (KZN252) remains the highest contributor in terms of population growth within Amajuba District Municipality. As of 2022, the population of Newcastle is recorded at 507 710 people, thus marking a 39.8% increase over an 11-year period, which translates to 144 474 people. This means that on average, Newcastle has experienced a 1.9% annual growth rate, which translates to 6 901 people per year. Newcastle has also experienced a significant increase in the total youth proportion of the population. In terms of the wider KwaZulu-Natal Province, Newcastle ranks second as the local municipality with the highest number of people when compared to other local municipalities, with the highest being the Msunduzi Local Municipality. The population of Newcastle is spread unevenly over 34 wards as per the outcomes of the ward delineation process by the Demarcation Board.

Furthermore, there has been a 38.6% increase (32 492) in the number of households within Newcastle from 84 271 in 2011 to 116 763 in 2022, with the average household size remaining constant at 4.3 people per dwelling unit. In relation to other local municipalities within the KwaZulu-Natal Province, in the year 2011, Newcastle Local Municipality was ranked third after the Msunduzi and uMhlathuze Local Municipalities respectively with regards to the highest number of households. However, recent statistical figures reveal that Newcastle Local Municipality has moved up to the 2nd place following the Msunduzi Municipality and uMhlathuze Municipality has assumed third place (Newcastle IDP, 2024-2025).

6.1.13.2 Population by age categories

Newcastle's population is relatively young with 37.1% of the total population being younger than 19 years of age, and the age group between 20 - 34 years accounting for 28% of the of the total population. Collectively the youth in Newcastle (0 – 34 years) makes up 64.7% of the total population, and this places immense pressure on the provision of educational facilities, social welfare, health services and the stimulation of the economy to provide job opportunities and economic development. Also implied by the young population is that there is still a relatively high dependency ratio due to a very high majority being below the working age.

6.1.13.3 Population by gender distribution

Regarding gender distribution within the Newcastle municipal area, 52% of the total population is female while males account for the remaining 48%. This observed trend in gender distribution conforms to the National norm. Due to such, there is a need for programmes specifically targeted towards gender equality. In response to this, Newcastle Municipality has prioritized gender issues as part of its Special Programmes under Operation Sukuma Sakhe. It is imperative that specific projects and programmes aligned to the National Programme should be developed and rolled out in line with the municipal programme of action.

6.1.13.4 Employment

In terms of the unemployment rate within Newcastle, based on the figures presented on the table below (Stats SA 2001 Census Data), in the year 2001 the economically active population (a section of the population which is either employed or actively seeking employment) constituted 43.51% (144 885) of the total population. From the total economically active population, only a mere 39.52% (57 266) were employed and the rest of the 60.48% (87 619) were unemployed. The unemployed people

within Newcastle were ranging from the seasonal workers who were presently unemployed, and individuals who could not find work. Regarding the unemployment rate within Newcastle for the year 2011, the economically active population constituted 27.71% (100 654) of the total population. From the total number of economically active people, only 62.56% (62 968) were employed and the rest of the 37.44% (37 686) were unemployed. In terms of gender, in 2001 the highest concentration of the unemployed was amongst the female population (42 750) as compared to the male population (36 985), and in 2011 it still remains highest amongst the female population (20 129) as compared to the male population (17 557). In general, the decrease in the unemployment rate means progress has been made within Newcastle from 60.48% in 2001 to 37.44% in 2011.

7 IDENTIFICATION OF POTENTIAL IMPACTS

The scoping phase of an S&EIR process is aimed to identify those potential impacts that are most likely to be significant, and which need to be assessed as part of the S&EIR process. The determination of anticipated impacts associated with the proposed development is a key component to the S&EIR process. This Chapter identifies the perceived environmental and social effects associated with the proposed project. The assessment methodology is indicated in **Section 8.5**.

The issues identified stem from those aspects presented in **Section 6** of this document as well as project description provided. Each significant issue identified is to be investigated further during the S&EIR process. Non-significant issues will be scoped out of the study with reasonable consideration given within this DSR.

7.1 TOPOGRAPHY AND GEOLOGY

The potential impacts of clearing the site vegetation, construction of the project structures and associated infrastructure and operation of the project are expected to have minimal on the general topography and geology of the site.

Construction Impacts	Phase	Determining the short-term and construction related impacts of the project on the geology and topography. Areas of vulnerability and instability to be identified.
Operational Impacts	Phase	Operational impacts to be identified and mitigated.
Mitigation Considerations		Consideration of areas of geological instability in the construction phase. Land Use Map was revised to minimise plantations over areas prone to subsidence. An existing road where there is a history of sinkholes has been re-routed.
Recommended Phase Studies	EIA	N/A

7.2 SOILS AND HYDROPEDOLOGY

The following potential impacts on soil and the interaction between soil and water were identified:

Construction Impacts	Phase	Temporary disturbance to the soils as a result of construction related activities and the movement of machinery and vehicles. Evaporation Dam is located within the existing footprint of the historic dams to minimise disturbance
Operational Impacts	Phase	Impacts of lining the evaporation dams. Lining the evaporation dams will reduce recharge to the groundwater aquifer which potentially feeds the Knockbex Stream. Afforestation of the opencast areas is expected to improve soil quality. Lining of the dams may reduce baseflow to the river. Impact of the lining on water quality. Lining of the evaporation dams will have a positive impact on the groundwater quality.

Changes in water chemistry (pH) of the affected wetlands and watercourses.

- Mitigation Considerations**
- Control measures for the movement of vehicles and machinery
 - Spill management
 - Stock piling areas and methods
 - Erosion prevention and management.
 - Mitigation of sedimentation of watercourses.

Recommended EIA Phase Studies Hydropedology Assessment

7.3 AQUATIC AND FRESHWATER

Activities considered to potentially impact upon the aquatic receptors during the construction phase are those associated with the interventions: forestry and evaporation dams. The below subsections describe foreseeable impacts arising from these activities.

- | | | |
|-----------------------------|--------------|--|
| Construction Impacts | Phase | <p>Mobilisation of pollutants to the Knockbrex and Ingagane River systems</p> <p>Introduction of alien species within and near the watercourses as a result of vegetation clearing and soil disturbance.</p> <p>Vegetation clearing that increases surface runoff and erosion.</p> <p>Increase in sedimentation.</p> <p>Bulk earthworks activities associated with the lining of the evaporation dams that could result in the mobilisation of pollutants.</p> |
|-----------------------------|--------------|--|

- | | | |
|----------------------------|--------------|---|
| Operational Impacts | Phase | <p>The impacts included but not limited to:</p> <ul style="list-style-type: none"> ■ Disruption of natural flow levels and patterns in the Knockbrex catchment. ■ Plantations to likely decrease the productivity and cover of herbaceous vegetation growing beneath the trees which may lead to incidences of soil erosion and ultimately an increase in sedimentation. ■ The main foreseeable aquatic-related impacts will occur if the rate of evaporation is exceeded by the rate of overflow from the Southern Compartment and if the protective dam liner fails to contain water such that the water percolate into nearby watercourses. This will potentially result in water quantity and water quality and modifications, subsequently deterring sensitive biota. |
|----------------------------|--------------|---|

- Mitigation Considerations**
- Water quality monitoring to allow for early detection of overflows.
 - Implementation of measures to limit erosion and runoff that may carry contaminants.
 - Alien Invasive Species control and management.
 - Southern Compartment to be used to as storage to buffer seasonal fluctuations and therefore minimise risk of overflow from the Evaporation Dam.
 - Evaporation Dam is designed to optimise evaporation.
 - There is a positive impact on the aquatic and freshwater resource as an outcome of the implementation of the water management strategy - AKA the point of the project.
 - Forestry aims to minimise the amount of rain water contaminated by intercepting the rainfall before it recharges into the mine workings.

Recommended EIA Phase Studies A Freshwater Assessment and Aquatic Assessment will be undertaken.

7.4 GEOHYDROLOGY

The potential groundwater quantity and quality impacts for the current, interim and long-term water management strategies is detailed below. The key predicted cumulative impact is that rain recharge (clean water) will be reduced through evaporation in the forestry areas.

Construction Impacts **Phase** N/A

Operational Impacts **Phase**

- Uncontrolled decant – uncontrolled discharge of poor quality water through decants and seeps will negatively affect both the aquifer and surface streams.
- Recharge reduction
- Loss of baseflow
- Potential impact of the evaporation dam could be leachate of poor quality water to the aquifer.

Mitigation Considerations

- Management of water levels in the southern compartment through controlled discharge.
- Investigation of potential water quality stratification in the underground compartment.
- Water quality monitoring

Recommended EIA Phase Studies A Geohydrology Assessment will be undertaken.

7.5 TERRESTRIAL BIODIVERSITY

Potential impacts associated with terrestrial biodiversity include direct loss and disturbance of habitats, establishment and spread of alien invasive species, loss and fragmentation of faunal habitats, injury and mortality of faunal species and loss of species of conservation concern.

To an extent, portions of the site have and been transformed by previous mining related activities.

Construction Impacts **Phase**

- Direct loss and disturbance of natural habitat
- Habitat fragmentation affecting ecological processes
- Establishment and spread of alien invasive species
- Increased soil erosion and sedimentation

Operational Phase Impacts

- Establishment and spread of alien invasive species
- Increased soil erosion and sedimentation

Mitigation Considerations The project layout must avoid sensitive habitats as far as possible.

Minimise development footprint within high sensitivity areas and ensure that final development layout takes account of areas identified as sensitive during the field survey. The plantations will be established over the mined out areas for the evapotranspiration to be an effective tool in minimising the volume of water that comes into contact with the mined out areas and gets contaminated.

Alien and invasive vegetation control should take place throughout the duration of the construction and operation phases. An alien management plan will be incorporated into the EMPr.

Recommended EIA Phase Studies Terrestrial Biodiversity Impact Assessment including plant and animals' species theme assessments.

7.6 HERITAGE

Background research indicates that there are some cultural heritage sites and features in the larger geographical area within which the study area falls. No Stone Age sites, or material were identified or recorded in the study area during the recent field-based assessment, while a number of Late Iron Age stone-walled settlement remains, as well as recent historical graves and grave sites were identified in the area.

Construction Phase Impacts **Disturbance to Known Cultural Resources**
Construction activities may lead to disturbance or destruction of cultural resources (archaeological and historical remains and sacred sites e.g. graves) should the development footprint encroach on identified cultural/heritage sites.

Chance Find of Cultural Resources

Earthworks may accidentally expose unidentified subsurface fossil remains. This will result in a lost opportunity to preserve local cultural heritage and historical records should appropriate management measures not be in place (e.g. Chance Find Procedure).

Operational Phase Impacts No impacts anticipated.

Mitigation Considerations Construction activities should be conducted carefully, and all activities ceased if any archaeological, cultural and heritage resources are discovered.

The SAHRA and AMAFA should be notified, and investigation conducted before any activities can commence.

Chance Find Procedure must be included in the EMPr.

Avoidance of grave sites.

Recommended EIA Phase Studies A Heritage Impact Assessment, as defined in section 38 of the NHRA, will be undertaken during the EIA phase of the assessment.

7.7 PALAEOLOGY

The area is large and accessible; it is covered in mostly vegetation (grass). Outcrops are no longer present, but there are areas covered in dolerite boulders. Rehabilitation has taken place and most of the mine infrastructure has been removed. Ponds are visible in areas. Fossils were not found during the walk through.

Construction Phase Impacts No impacts anticipated.

Operational Phase Impacts No impacts anticipated.

Mitigation Considerations

- Construction activities should be conducted carefully, and all activities ceased if any archaeological, cultural and heritage resources are discovered.
- The SAHRA should be notified, and investigation conducted before any activities can commence.
- Chance Find Procedure must be included in the EMP.

Recommended EIA Phase Studies

A Desktop Palaeontological Impact Assessment will be undertaken.

7.8 SOCIO-ECONOMIC

The proposed project is expected to have minimal impact on the socioeconomics of the general area. Forestry is a viable post-mining land use and therefore has a socio economic benefit.

Construction Phase Impacts

Creation of temporary local employment, training, and business opportunities

Members from the local communities in the area could potentially be in a position to qualify for most of the low skilled and semi-skilled employment opportunities. There are existing forestry operations in the area and the intention is to utilise the local businesses with the knowledge and expertise to execute the project. This is a benefit to the local community.

Impact of construction workers on local communities

Potential influx of workers in the area.

Nuisance impacts associated with construction related activities

Construction related activities, including the movement of heavy construction vehicles of and on the site, has the potential to create dust, noise and safety impacts and damage roads. The impacts will be largely local and can be effectively mitigated. Access for construction vehicles for the Evaporation Dam has been discussed with Eskom.

Operational Phase Impacts

Creation of employment and business opportunities

The proposed development will create full time employment opportunities during the operational phase that will be available to the local community. The operational phase may also create business and procurement opportunities which will benefit local companies in the area.

Mitigation Considerations

Mitigation to be directed toward minimizing influx related activities.

Identifying and managing areas of conflict between newcomers and incumbent population.

Managing social nuisances.

Recommended EIA Phase Studies

No further studies recommended

7.8.1 TRAFFIC

Construction Phase Impacts	Increased traffic generation around the study area by construction vehicles The construction phase is expected to generate additional traffic volumes on the local road network due to the transport of raw materials, machinery and personnel to site.
Operational Phase Impacts	No impacts anticipated.
Mitigation Considerations	The movement of vehicles into and out of the site must be managed such as ensuring that abnormal loads are moved outside of peak traffic hours. Stagger component delivery to the site. All drivers should comply with the relevant traffic laws and regulations. Abnormal vehicle routes and management plans may be required dependant on the type and route of the abnormal vehicle loads. Abnormal vehicles may require special permits and route plans from the relevant road authority. These permits are the responsibility of the developer and its logistics/freight companies. Undertake regular maintenance of onsite gravel roads during the construction phase.
Recommended EIA Phase Studies	No further studies are recommended.

7.9 SUMMARY OF POTENTIAL IMPACTS

Aspect	Impact	Nature	Probability	Consequence	Significance (Before Mitigation)	Further Assessment Required
Topography and Geology	Constructability	Negative	3	2	Medium	Yes (Geotechnical Assessment)
Aquatic and Freshwater Environment	Activities associated with the forestry – bush clearing, removing and moving of soil and rocks resulting in the increase in potential for erosion, the mobilization of pollutants, and the introduction of alien species.	Negative	3	4	High	Yes (Aquatic and Freshwater Impact Assessment)
	Evaporation dam - bare surfaces increase flows and sedimentation resulting in modifications to the natural stream hydrology and habitat for aquatic biota.	Negative	2	2	Low	
	Mine flooding – overflow of mine water into the Knockbex Stream leading to water quality and quantity modifications	Negative	3	4	High	
	Reduction in catchment yield due to water uptake by the plantations and introduction of alien species	Negative	3	2	Medium	
	Disturbance of wetland habitat due to earthworks for dam lining and artificial wetland construction	Negative	3	2	Medium	

Aspect	Impact	Nature	Probability	Consequence	Significance (Before Mitigation)	Further Assessment Required
	Changes in wetland health, functioning and hydrology	Negative	3	4	High	
	Wetland soil erosion	Negative	3	2	Medium	
	Spread of AIS during operation	Negative	3	2	Medium	
Hydropedology	Changes in water chemistry of the affected wetlands and watercourses	Negative	3	4	High	Yes (Desktop hydrogeology assessment)
	Reduction of baseflow as a result of the liners at the evaporation dam	Negative	4	2	Medium	
	Lining of the dam will result in the prevention of poor quality water entering the aquifer and stream	Positive	4	2	Medium	
Hydrogeology	Decant to the surface stream and uncontrolled decant is mitigated	Positive	4	2	Medium	Yes (Hydrogeology Assessment)
	Impacts of discharge on water quality	Negative	4	2	Medium	
	Reduction in volume of water to the rehabilitation open pits.	Positive	4	2	Medium	
	Forestry cover over the regional aquifer resulting in reduced, minimal or no discharge to the Knockbrex River	Positive	4	2	Medium	

Aspect	Impact	Nature	Probability	Consequence	Significance (Before Mitigation)	Further Assessment Required
	Forestry cover over the regional aquifer resulting in the lowering of the water levels and reduced water to the adjacent groundwater user	Negative	4	2	Medium	
	Release of water to the surface water catchment – the evaporation dams are in the footprint of the historical dams adjacent to the Kilbarchan compartment. Potential of leachate or overflow of contaminated water stored in the dams into groundwater	Negative	4	2	Medium	
Terrestrial Biodiversity	Habitat fragmentation affecting ecological processes	Negative	4	2	Medium	Yes (Terrestrial Biodiversity Assessment)
	Direct loss and disturbance of habitat	Negative	4	4	High	
	Establishment and Spread of Alien Invasive Species	Negative	4	2	Medium	
	Loss and Fragmentation of Faunal and floral habitats	Negative	4	4	High	
	Injury and mortality of faunal and floral Species of Conservation Concern	Negative	3	2	Medium	

Aspect	Impact	Nature	Probability	Consequence	Significance (Before Mitigation)	Further Assessment Required
Heritage and Cultural Resources	Disturbance to known cultural resources and grav sites	Negative	4	4	High	Yes (Archaeological and Heritage Impact Assessment)
	Chance Find of Cultural Resources	Negative	2	2	Low	
Palaeontology	Chance Find of Palaeontological resources	Negative	2	2	Low	Yes (Desktop Palaeontology Impact Assessment)
Socio-Economic	Creation of local employment, training, and business opportunities	Positive	3	1	Low	Yes (Socio-economic Impact Assessment)
	Increased opportunity for local businesses and suppliers	Positive	3	2	Medium	
	Impact of construction workers on local communities	Negative	2	1	Very low	
	Nuisance impacts associated with construction related activities	Negative	3	1	Low	
	Noise impacts on surrounding properties	Negative	3	2	Medium	
	Noise impacts on fauna	Negative	3	2	Medium	
Traffic	Increased traffic generation around the study area by construction vehicles	Negative	3	1	Low	No
	Deterioration of the surrounding road network due to an increase of traffic around the site	Negative	3	1	Low	

Aspect	Impact	Nature	Probability	Consequence	Significance (Before Mitigation)	Further Assessment Required
	Transportation of abnormal loads during the construction phase	Negative	3	1	Low	
	Increased traffic due to new roads to and from the project area	Negative	3	1	Low	

8 PLAN OF STUDY FOR THE EIA REPORTING PHASE

8.1 TERMS OF REFERENCE

Table 8-1 outlines the structure of the plan of study as required in terms of Appendix 2 of the EIA Regulations.

Table 8-1 - Plan of Study Structure

PLAN OF STUDY CHAPTER	INFORMATION REQUIREMENT AS PER THE EIA REGULATIONS
Description of EIA Tasks	A description of the tasks that will be undertaken as part of the environmental impact assessment process.
Description of Alternatives	A description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity.
Aspects to be Assessed in the EIA Process	A description of the aspects to be assessed as part of the environmental impact assessment report process.
Specialist Studies	Aspects to be assessed by specialists.
Impact Assessment Methodology	A description of the proposed method of assessing the environmental aspects, including a description of the proposed method of assessing the environmental aspects including aspects to be assessed by specialists. A description of the proposed method of assessing duration and significance.
Environmental Impact Report	Contents of the EIR as specified in the EIA Regulations
Stakeholder and Authority Engagement	An indication of the stages at which the competent authority will be consulted. Details of the public participation process that will be conducted during the EIA process.

8.2 OVERVIEW OF THE EIA TASKS

The EIA phase will consist of the following tasks; each of these tasks is detailed separately in the following sub-sections:

- Specialist studies;
- Continuation of authority and stakeholder engagement;
- Assessment of the significance of potential impacts; and
- Preparation of the EIR.

8.3 DESCRIPTION OF THE ALTERNATIVES

The EIA process identifies two types of project alternatives:

- Concept Level Alternatives which relate to the site, technology and process alternatives; and
- Detailed Level Alternatives which relate to working methods and mitigation measures.

Alternatives will be assessed as described in **Section 2** of this DSR.

8.4 TERMS OF REFERENCE FOR SPECIALISTS' STUDIES

Following the review of the DFFE Screening Tool Report and the Scoping Assessment, the specialist studies as indicated in the table below, will be commissioned in support of the EIA process.

Table 8-2 - Specialist Study Requirements

Protocol for Specialist Study	Scope of Specialist Assessment
Agricultural Theme The DFFE Screening Tool does not prescribe a protocol of the agricultural theme The site is considered high sensitivity due to the high land capability rating. However, based on the location of the site within the mining right area, the high sensitivity is refuted. As such a specialist study will not be undertaken.	N/A
Animal Species Theme The DFFE Screening Tool prescribed an animal species assessment be conducted based on the likely presence of sensitive avifaunal species. Therefore, a terrestrial animal species assessment will be incorporated into the Terrestrial Biodiversity Assessment.	The faunal assessment will include the following: - Collating and reviewing information and data on terrestrial fauna species that occur or potentially occur on-site and in the surrounding landscape. - Conducting a field programme to assess the presence and potential presence of terrestrial fauna species present on-site, with specific focus on species of conservation concern. - Assessing the suitability of the Proposed project and the potential negative impacts on terrestrial fauna that may result from proposed Project activities; and - Recommending mitigation and management measures for inclusion in the proposed Project's Environmental Management Programme (EMP) and/or Biodiversity Management Plan (BMP).
Aquatic Biodiversity Theme The DFFE Screening Tool prescribed that an Aquatic Biodiversity Assessment be undertaken based very high sensitivity rating of the study area. A wetland assessment will also be conducted as the site screening indicated the presence of wetlands within the study area.	The scope of the aquatic biodiversity assessment includes: - A desktop literature review - The aim of the desktop literature review component was to collate and review the extensive available ecological information related to important biodiversity and conservation features in the project area, key ecological processes and function, and the likely composition and structure of local aquatic fauna communities (specifically macroinvertebrates and fish). - A field survey – a field survey will be conducted to enable an adequate description and verification of the aquatic environment and to verify the present ecological state of the identified systems. The field survey will also determine the in-situ water quality, habitat indicators and response indicators.

Protocol for Specialist Study	Scope of Specialist Assessment
	■ Reporting – the report will include results of the field survey including flow conditions and general habitat observations, in-situ water quality and the direct influence that water quality has on aquatic life forms, habitat assessment, screening of potential impacts and an impact assessment including mitigation measures. The scope of the wetland assessment includes: ■ Literature review - The desktop literature review component aimed to collate and review the extensive available ecological information related to important aquatic and wetland features in the project's area of influence, key wetland processes and function, and the likely composition and structure of the wetland communities. ■ Wetland delineation - The delineation procedure set out in "A Practical Field Procedure for the Identification and Delineation of Wetlands and Riparian Areas", and as described by DWAF (2005) and Kotze & Marneweck (1999) was followed for confirmation of the wetland boundaries in field, based on indicators including terrain unit, soil form, soil wetness and vegetation. Wetland types are differentiated based on their hydrogeomorphic (HGM) characteristics i.e. on the position of the wetland in the landscape, as well as the way in which surface water and/or ground water moves into, through and out of the wetland systems. ■ Wetland classification - To allow for the differentiation between wetland systems and the prioritisation of systems either for conservation or management purposes, the wetlands were classified in accordance with each hydrogeomorphic (HGM) unit for assessment purposes according to (Kotze et al., 2008). Six major inland HGM types are recognised for the purposes of classification assessment. ■ Wetland assessment – including the present ecological state, wetland ecological importance and sensitivity assessment. ■ Impact assessment – identification of impacts and associated mitigation measures.
Archaeological and Cultural Heritage Theme The DFFE Screening Tool prescribed that a site verification be undertaken for the archaeological and cultural heritage theme. However, the NHRA requires that a HIA be undertaken therefore a specialist will be commissioned to undertake the HIA	The HIA will include: ■ Identification of all objects, sites, occurrences and structures of an archaeological or historical nature (cultural heritage sites) located on the portion of land that will be impacted upon by the proposed development. ■ Assessment of the significance of the cultural resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value.

Protocol for Specialist Study	Scope of Specialist Assessment
	- Describe the possible impact of the proposed development on these cultural remains, according to a standard set of conventions. - Propose suitable mitigation measures to minimize possible negative impacts on the cultural resources. - Review applicable legislative requirements.
Civil Aviation Theme The DFFE Protocol requires that a site verification be undertaken by the EAP or a specialist as the site is located between 8 and 15km from a civil aviation aerodrome.	The South African Civil Aviation Authority has been added to the stakeholder database and will be provided with the opportunity to comment on the Scoping and EIR documents.
Defence Theme The DFFE protocol requires that a site verification be undertaken by an EAP for the defence theme.	The Department of Defence has been added to the stakeholder database and will be provided with the opportunity to comment on the Scoping and EIR documents.
Palaeontology Theme The DFFE Screening Tool prescribed that a site verification be undertaken for the palaeontology theme. Based on the baseline assessment the site is deemed to be of low sensitivity and site verification will not be required.	Based on the location of the study area on previously mined land, the palaeontology of the site can be considered altered, therefore a Palaeontology Assessment will not be undertaken.
Plant Species Theme The DFFE Protocol requires that an assessment be completed for the site. A plant species assessment will be incorporated into the Terrestrial Biodiversity Assessment.	The medium sensitivity of the study area requires that a plant species compliance statement be undertaken. However, a plant species assessment will be undertaken as part of the terrestrial biodiversity assessment and will include the following: - Collating and reviewing information and data on terrestrial vegetation and flora species that occur or potentially occur on-site and in the surrounding landscape. - Conducting a field programme to collect data on vegetation communities and flora species present on-site. - Assessing the suitability of the Proposed project and the potential negative impacts on terrestrial vegetation and flora that may result from proposed Project activities. - Recommending mitigation and management measures for inclusion in the proposed project's Environmental Management Programme (EMP) and/or Biodiversity Management Plan (BMP).
Terrestrial Biodiversity Theme The DFFE Screen Tool prescribed that a Terrestrial Biodiversity Assessment be	The Terrestrial Biodiversity Assessment includes: Reviewing and summarising pertinent biodiversity information presented in relevant ecological, conservation and biodiversity datasets and literature;

Protocol for Specialist Study	Scope of Specialist Assessment
undertaken based on the CBA that the project area falls within. A specialist will be commissioned to undertake the Terrestrial Biodiversity Assessment.	- Conducting a field survey of the Project site to collect field data to verify the ecosystem and biodiversity characteristics of the site and surrounding landscape and identify any sensitivities. - Identifying and assessing potential negative impacts on terrestrial biodiversity and ecosystems associated with the proposed project. - Recommending appropriate biodiversity mitigation, management and monitoring measures for inclusion in the proposed Project's Environmental Management Plan (EMP) and/or Biodiversity Management Plan (BMP).
Hydropedology Assessment The DFFE screening tool did not prescribe that a Hydropedology Assessment be undertaken however it was undertaken in support of the WULA and to determine the suitability of the soils for the proposed plantation	The Hydropedology Assessment includes the following: - Review the Jones & Wagener (2017) hydropedology report and identify gaps. - Reassess the hydropedology following the DWAF guidelines, Van Tol et al., 2021. This includes: - Classification of the hydropedological soil types in the project area - Update the conceptual understanding of the baseline hydropedological conditions. - Determine the significance of the perceived impacts on the key drivers and receptors (hydrology, water quality, geomorphology, habitat and biota) of the wetlands associated with the study area.
Hydrogeological Assessment The DFFE screening tool did not prescribe that a Hydrogeology Assessment be undertaken however it was undertaken in support of the WULA and to analyse and assess groundwater	The Hydrogeological Report includes the following: - A desktop study conducted to inform the GN 267 template based on the WSP, 2023 groundwater model and other available information. - A site visit and hydrocensus conducted within a 3 km radius around the mine area. The hydrocensus was inclusive of field measurements and survey of existing monitoring boreholes, boreholes identified previously within the mine area, and six hydrocensus boreholes. The boreholes were sampled and sent to Talbot Laboratories for a comprehensive analysis including major cations, major anions, physico-chemical parameters, and metals. - Selected points were surveyed to confirm the locality and elevation. - A GN 267 report is based on the available information, the hydrocensus and includes qualitative Impact Assessment (IA) and recommended mitigation measures based on the updated water management information.
Surface Water (Hydrology) Assessment	The scope of the hydrological assessment includes: A baseline hydrological assessment will be conducted to establish the prevailing hydrological and climatic

Protocol for Specialist Study	Scope of Specialist Assessment
	characteristics of the project site prior to the establishment of the proposed infrastructure and related activities. Baseline water quality - The water quality within the receiving surface water resource will be analysed to form a water quality baseline. A monthly water quality monitoring program has been implemented in 2012. Monitoring data is therefore available since 2012. The baseline water quality was described based on water quality results from January 2012 to May 2024, which was the latest available information during the compilation of this report. The data was benchmarked against the RQOs established for the V31K catchment, supplemented by WQPLs for the catchment. Stormwater management plan - A SWMP is a statutory requirement for mining and related activities in South Africa. It is defined by General Notice 704 and Regulation 77 of the National Water Act (Act 36 of 1998) (South Africa, 1998). These guidelines were adopted when sizing all stormwater infrastructure as these are most relevant to the site activities. A SWMP's purpose is to prevent water resource pollution in and around mining areas or areas where mining-related activity occurs. Regulations define a methodological approach to preventing and/or containing pollution on mining sites, set design standards, and specify measures that must be taken to monitor and evaluate the efficacy of pollution control measures that are implemented Invalid source specified.. Surface water impact assessment - Potential impacts on surface water resources likely to arise from the proposed project activities will be identified and described. An impact significance rating methodology that considers duration, spatial extent, intensity, and probability of occurrence will be used to determine impact significance. Mitigation and management measures will then be recommended for each of the identified impacts.
Water and Salt Balance Report The Water and Salt Balance (WSB) will be undertaken in accordance with the Department of Water and Sanitation (DWS) Best Practice Guidelines (BPG) for WSB, which is required by Roy Point Colliery to function as a reporting and management tool which represents the current site conditions and management practices. The WSB is also required to for the Water Use Licence Application (WULA) process for the WULA associated with the Roy Point Water Management measures.	The scope of the WSB include: ■ Assessment of the water pollution sources and their responses to climate and groundwater influences. ■ Confirmation and further identification and quantification of seepage and leakage points. ■ Provision of the necessary information to inform the water management strategy. ■ Assisting with the design of water management solutions including storage and assisted evaporation to minimise the risk of spillage and seepage to the receiving environment.

8.5 IMPACT ASSESSMENT METHODOLOGY

The EIR uses a methodological framework developed by WSP to meet the combined requirements of international best practice and NEMA, Environmental Impact Assessment Regulations.

As required by the EIA Regulations, the determination and assessment of impacts will be based on the following criteria:

- Nature of the Impact;
- Significance of the Impact;
- Consequence of the Impact;
- Extent of the impact;
- Duration of the Impact;
- Probability if the impact;
- Degree to which the impact:
 - can be reversed;
 - may cause irreplaceable loss of resources; and
 - can be avoided, managed or mitigated.

Following international best practice, additional criteria have been included to determine the significant effects. These include the consideration of the following:

- Magnitude: to what extent environmental resources are going to be affected;
- Sensitivity of the resource or receptor (rated as high, medium and low) by considering the importance of the receiving environment (international, national, regional, district and local), rarity of the receiving environment, benefits or services provided by the environmental resources and perception of the resource or receptor); and
- Severity of the impact, measured by the importance of the consequences of change (high, medium, low, negligible) by considering inter alia magnitude, duration, intensity, likelihood, frequency and reversibility of the change.

It should be noted that the definitions given are for guidance only, and not all the definitions will apply to all of the environmental receptors and resources being assessed. Impact significance was assessed with and without mitigation measures in place.

8.5.1 METHODOLOGY

The assessment of impacts and mitigation evaluates the likely extent and significance of the potential impacts on identified receptors and resources against defined assessment criteria, to develop and describe measures that will be taken to avoid, minimise or compensate for any adverse environmental impacts, to enhance positive impacts, and to report the significance of residual impacts that occur following mitigation.

The key objectives of the risk assessment methodology are to identify any additional potential environmental issues and associated impacts likely to arise from the proposed project, and to propose a significance ranking. Issues / aspects will be reviewed and ranked against a series of significance criteria to identify and record interactions between activities and aspects, and resources and receptors

to provide a detailed discussion of impacts. The assessment considers direct⁵, indirect⁶, secondary⁷ as well as cumulative⁸ impacts.

A standard risk assessment methodology is used for the ranking of the identified environmental impacts pre-and post-mitigation (i.e., residual impact). The significance of environmental aspects is determined and ranked by considering the criteria⁹ presented in **Table 8-3**.

Table 8-3 – Impact Assessment Criterion and Scoring System

Criteria	Score 1	Score 2	Score 3	Score 4	Score 5
Impact Magnitude (M) The degree of alteration of the affected environmental receptor	Very low: No impact on processes	Low: Slight impact on processes	Medium: Processes continue but in a modified way	High: Processes temporarily cease	Very High: Permanent cessation of processes
Impact Extent (E) The geographical extent of the impact on a given environmental receptor	Site: Site only	Local: Inside activity area	Regional: Outside activity area	National: National scope or level	International: Across borders or boundaries
Impact Reversibility (R) The ability of the environmental receptor to rehabilitate or restore after the activity has caused environmental change	Reversible: Recovery without intervention		Recoverable: Recovery with intervention		Irreversible: Not possible despite action
Impact Duration (D) The length of permanence of the impact on the environmental receptor	Immediate: On impact	Short term: 0-5 years	Medium term: 5-15 years	Long term: Project life	Permanent: Indefinite
Probability of Occurrence (P) The likelihood of an impact occurring in the absence of pertinent environmental management measures or mitigation	Improbable	Low Probability	Probable	Highly Probability	Definite

⁵ Impacts that arise directly from activities that form an integral part of the Project.

⁶ Impacts that arise indirectly from activities not explicitly forming part of the Project.

⁷ Secondary or induced impacts caused by a change in the Project environment.

⁸ Impacts are those impacts arising from the combination of multiple impacts from existing projects, the Project and/or future projects.

⁹ The definitions given are for guidance only, and not all the definitions will apply to all the environmental receptors and resources being assessed. Impact significance was assessed with and without mitigation measures in place.

Criteria	Score 1	Score 2	Score 3	Score 4	Score 5
Significance (S) is determined by combining the above criteria in the following formula:	$[S = (E + D + R + M) \times P]$ <i>Significance = (Extent + Duration + Reversibility + Magnitude) × Probability</i>				
Impact Significance Rating					
Total Score	4 to 15	16 to 30	31 to 60	61 to 80	81 to 100
Environmental Significance Rating (Negative (-))	Very low	Low	Moderate	High	Very High
Environmental Significance Rating (Positive (+))	Very low	Low	Moderate	High	Very High

8.5.2 IMPACT MITIGATION

The impact significance without mitigation measures will be assessed with the design controls in place. Impacts without mitigation measures in place are not representative of the proposed development's actual extent of impact and are included to facilitate understanding of how and why mitigation measures were identified. The residual impact is what remains following the application of mitigation and management measures and is thus the final level of impact associated with the development. Residual impacts also serve as the focus of management and monitoring activities during project implementation to verify that actual impacts are the same as those predicted in this report.

The mitigation measures chosen are based on the mitigation sequence/hierarchy which allows for consideration of five (5) different levels of mitigation, which include avoid/prevent, minimise, rehabilitate/restore, offset and no-go, in that order. During the consideration of impacts, the first option should be to avoid or prevent the impacts from occurring initially if possible, however, this is not always feasible. If this is not attainable, the impacts can be allowed, however these must be minimised as far as possible by reducing the footprint of the development so that minimal impact is experienced. If impacts are unavoidable, the next goal is to rehabilitate or restore the areas impacted back to their original form after project completion. Offsets are then considered if all the other measures described above fail to remedy high/significant residual negative impacts. If no offsets can be achieved on a potential impact, which results in full destruction of any ecosystem for example, the no-go option is considered so that another activity or location is considered in place of the original plan.

The mitigation sequence/hierarchy is shown in **Figure 8-1** below.

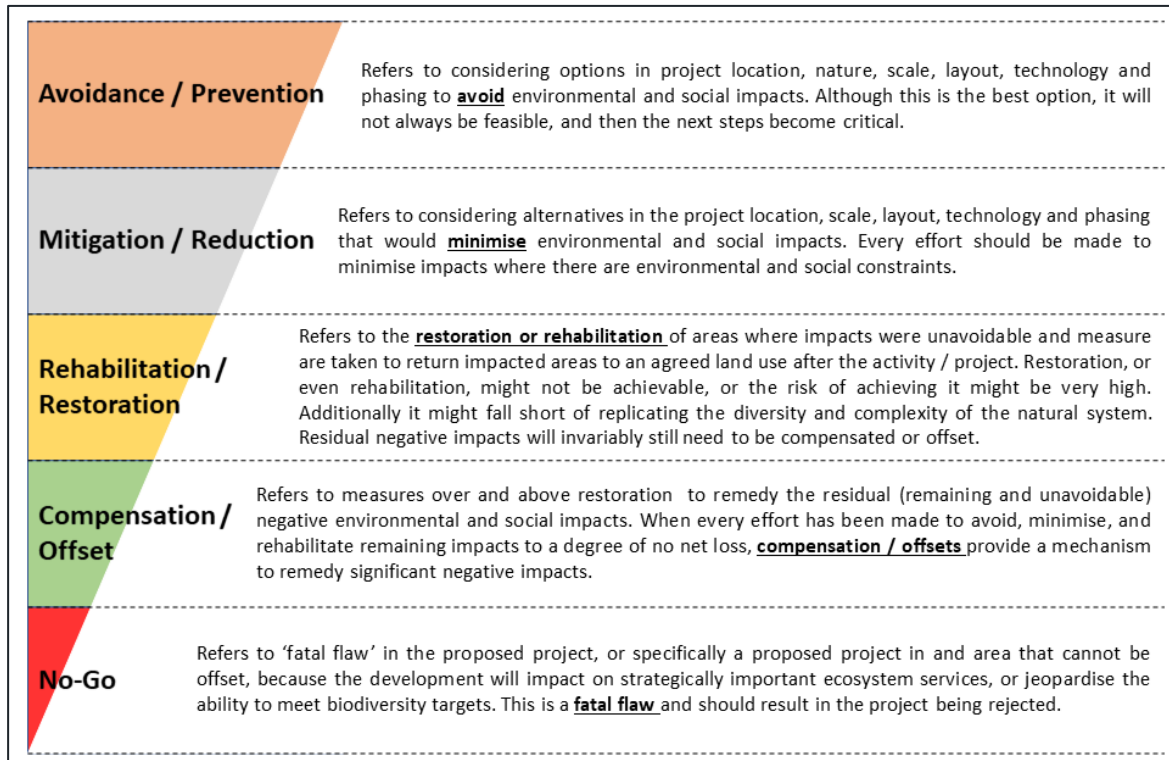


Figure 8-1 - Mitigation Sequence/Hierarchy

8.6 ENVIRONMENTAL IMPACT REPORT (EIR)

Once the FSR has been submitted the proposed project will proceed into detailed EIA phase, which involves the detailed specialist investigations. WSP will produce a Draft EIR after the completion of the required specialist studies. The Draft EIR will provide an assessment of all the identified key issues and associated impacts from the Scoping phase. All requirements as contemplated in the EIA Regulations will be included in the Draft EIR. The Draft EIR will contain, inter alia, the following:

- Details of the EAP who prepared the report and the expertise of the EAP to carry out the S&EIR process, including a curriculum vitae;
- The location of the activity, including the 21-digit Surveyor General code of each cadastral land parcel, where available, the physical address and farm name; and the coordinates of the boundary of the property or properties.
- A plan which locates the proposed activity or activities applied for as well as the associated structures and infrastructure at an appropriate scale.
- A description of the scope of the proposed activity, including all listed and specified activities triggered and being applied for; and a description of the associated structures and infrastructure related to the proposed project.
- A description of the policy and legislative context within which the development is located and an explanation of how the proposed development complies with and responds to the legislation and policy context.
- A motivation for the need and desirability for the proposed development, including the need and desirability of the activity in the context of the preferred location.
- A motivation for the preferred development footprint within the approved site.

- A full description of the process followed to reach the proposed development footprint within the approved site.
- Details of the public participation process undertaken.
- A summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them.
- The environmental attributes associated with the development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects.
- The impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts.
- The methodology used in determining and ranking of potential environmental impacts and risks.
- Positive and negative impacts.
- An assessment of each identified potentially significant impact and risk.
- The possible mitigation measures that could be applied.
- An environmental impact statement.
- A description of any assumptions, uncertainties and gaps in knowledge.
- A reasoned opinion as to whether the proposed activity should or should not be authorised.
- An undertaking under oath or affirmation by the EAP; and
- An EMP.

8.7 STAKEHOLDER AND AUTHORITY ENGAGEMENT

8.7.1 PUBLIC PARTICIPATION PROCESS

The approach to the Public Participation Process (PPP) during the EIA phase will be similar to the process during the Scoping Phase. The PPP is being reviewed and refined to accommodate the learnings from the Scoping Phase, as well as consider recommendations received from registered I&APs.

The PPP during the EIA phase will include the following steps:

- Announcement of the availability of the Draft EIR and EMP, the opportunities for comment and invitation to public meetings.
- Distribution of a Non-Technical Summary of the Draft EIR and EMP and project announcement documents via email, bulk SMS and via identified local community structures, which may include the use of social media.
- Posting all impact assessment documents to WSP's website and the data-free website.
- Enabling communication through the project dedicated email address.
- Ongoing registration of stakeholders as I&APs.
- Focus group meetings with key sectors of society.
- Issues-based focus group meetings with key stakeholders.
- Public meetings.
- Opportunities for stakeholders to submit comments in writing.

All issues raised during the impact assessment phase will be captured in the CRR. Issues related to the findings of the environmental specialist studies of the proposed project that were raised during the scoping phase, will be responded to during the impact assessment phase.

The PPP during the EIA phase will be focused on the findings of the EIA which will be presented in the Draft EIR. All stakeholders will be notified of the progress to date and availability of the Draft EIR,

via mail, email and/or SMS. A legislated period of 30 consecutive days will be allowed for public comment. Reports will be made available in the following way:

- Distribution for comment at central public places, which were used during the Scoping Phase;
- The document will be made available to download from the WSP website; and
- Soft copies of the report will be made available on request.

The EIA phase will provide the following information to I&APs:

- Initial Site Plan;
- Alternatives;
- A description of activities and operations to be undertaken;
- Baseline information;
- Specialist studies;
- Impact assessment;
- Management measures; and
- Monitoring and measuring plans.

The information outlined above will be presented in one or more of the following:

- Notifications;
- Meetings;
- Scoping Report;
- EIR; and
- EMPr.

All comments received during the EIA phase will be recorded in the CRR, which will be included in the draft and Final EIR. The Final EIR will incorporate public comment received on the Draft EIR and will be made available for public review with hard copies distributed mainly to the authorities and key stakeholders.

8.8 NOTIFICATION OF ENVIRONMENTAL AUTHORISATION

All stakeholders will receive a letter at the end of the process notifying them of the authority's decision, thanking them for their contributions, and explaining the appeals procedure.

8.9 CONSULTATION WITH THE CA

It is envisaged that consultation with the DMPR will coincide with the compilation of the following key documents:

- DSR;
- FSR;
- Draft EIR/EMPr; and
- Final EIR/EMPr (including specialist studies).

9 WAY FORWARD

This DSR contains:

- A description of the existing and proposed activities;
- A description of the alternatives considered to date;
- An outline of the proposed process to be followed;
- Information on the proponent, EAP and stakeholders who have chosen to participate in the project;
- An outline of the environment in which the project falls;
- Information on the potential environmental impacts to be studied in more detail during the EIAR phase of the project; and
- Information on the proposed specialist studies to be undertaken.

A number of environmental impacts have been identified as requiring some more in-depth investigation and the identification of detailed mitigation measures, namely the impacts on the aquatic and terrestrial environment. Therefore, a detailed EIA is required to be undertaken in order to provide an assessment of these potential impacts and recommend appropriate mitigation measures.

The DSR is currently available for review. All issues and comments have been submitted to WSP have been incorporated in the CRR of the FSR.

The FSR will be submitted to the DMRE responsible for authorising this project.

If you have any further enquiries, please feel free to contact:

WSP Group Africa (Pty) Ltd

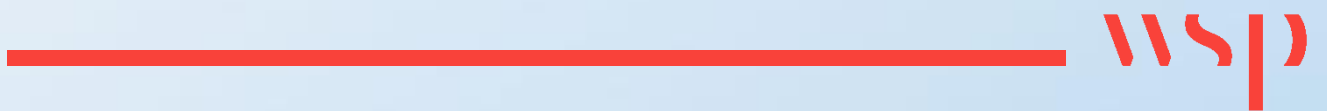
Attention: Patricia Nathaniel

Tel: 011 361 1398

E-mail: Pp@wsp.com

Appendix A

EAP CV



Appendix B

EAP DECLARATION



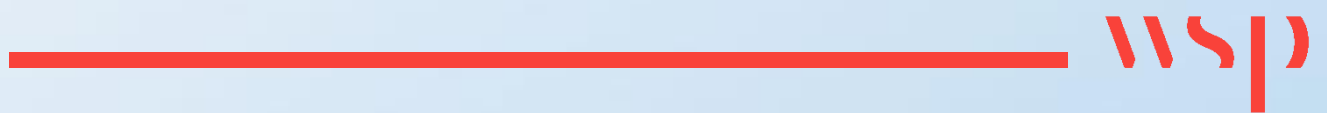
Appendix C

MAPS AND LAYOUT PLANS



Appendix C.1

LOCALITY MAP



Appendix C.2

LAYOUT MAP



Appendix C.3

CRITICAL BIODIVERSITY AREAS



Appendix C.4

WATERCOURSES



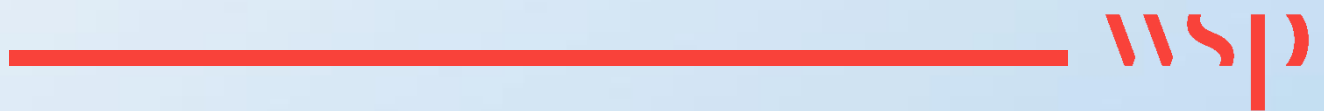
Appendix C.5

VEGETATION MAP



Appendix C.6

OVERALL SENSITIVITY MAP



Appendix D

DFFE SCREENING TOOL





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