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Application for Integrated Environmental Authorisation: Wastewater Treatment Plant and Co-Disposal Facility for Maquasa East Operations.

Draft Scoping Report

Version – Draft for Public Review

20 November 2023

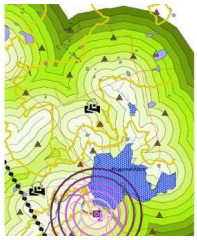
Kangra Coal (Pty) Ltd

GCS Project Number: 22-0161

DMR Reference: MP 30/5/1/23/2/1/133 EM

Client reference: KC/003/22

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Offices: **Johannesburg** (Head Office) | Durban | Gaborone | Lusaka | Maseru | Windhoek | Ostrava
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Integrated Environmental Authorisation Application: Wastewater Treatment Plant and Co-Disposal Facility for Maquasa East Operations.

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	Name	**Signature**	**Date**
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Document Reviewer	Renee Steele *Pr. Sci. Nat: 008920* *EAPASA: 2022/4847*		16 November 2023
Director	Magnus van Rooyen *Pr. Sci. Nat: 400335/11*		20 November 2023

EXECUTIVE SUMMARY

Project Background

The applicant, Kangra Coal (Pty) Ltd (Kangra), holds approved Environmental Management Programmes (EMPr) for their Maquasa East, Maquasa West and Nooitgesien mining areas, situated approximately 40km west of the town of Piet Retief, Mpumalanga Province. These documents were combined into one EMPr during the application process undertaken by GCS (Pty) Ltd (GCS) in terms of Section 102 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA) during 2013.

Kangra intends to construct a wastewater treatment plant (WWTP) for the treatment of effluent, and a new co-disposal facility (CDF), including supporting and associated infrastructure, at their Maquasa East operations (DMRE reference number: MP 30/5/1/23/2/1/133 EM).

Project Description

An overview of the proposed projects is provided below:

Wastewater Treatment Plant

The purpose of the proposed WWTP is to treat decant water as well as surplus contaminated water within the mining operations. MQE is currently decanting clear groundwater from old underground workings at an average rate of 1 800m^3/d. The WWTP will employ 'active' treatment of the wastewater as it was found that passive treatment is not feasible nor possible due to decant point's location, the high flow rates and the discharge quality required. Brine resulting from the WWTP will be piped and stored in a new proposed brine pollution control dam (Brine PCD). Treated effluent from the WWTP will be discharged to the Heyshope Dam via an underground pipeline from the treatment plant to the dam. Access to the WWTP and associated pipelines will be through existing roads.

Co-Disposal Facility

The proposed CDF falls within the exact footprint of the previously authorized (MDARDLEA Ref: 17/2/3/GS-240) MQE Discard Dump.

As a result of changing operational requirements, and the lapsing of the previous authorisation, there is now a need to license a new CDF at MQE.

The CDFwill accommodate discard produced at the beneficiation plant, slurry/filter cake and potentially brine from the WWTP.

The CDF's design will be like the authorized discard dump: a three-compartment side hill-type facility with a footprint of approximately 65ha. A phased development approach, over a period of 20 years, is envisaged: Phase 1 – 7 years; Phase 2 – 7 years and Phase 3 – 6 years

capacity. Associated and supporting infrastructure includes haul roads, PCDs, stormwater management measures, various pipelines, etc.

To enable the implementation of the proposed projects, Kangra needs to acquire the necessary environmental approvals. GCS Water and Environment (Pty) Ltd (GCS) has been appointed as the independent Environmental Assessment Practitioner (EAP) to compile and submit the required documentation for the Integrated Environmental Application by Kangra Coal (Pty) Ltd for:

- An Integrated Environmental Authorisation (IEA) and Waste Management License (WML) through a Scoping and Environmental Impact Reporting (S&EIR) process and the compilation of an Environmental Management Programme (EMPr), in terms of the NEMA, National Environmental Management: Waste Act, 2008 (Act 59 of 2008) (NEMWA), and Environmental Impact Assessment (EIA) Regulations (2014, as amended) (IEA Application);
- An Integrated Water Use License (IWUL), in terms of the National Water Act, 1998 (Act 36 of 1998) (NWA).

Scoping and Environmental Impact Report Process

A S&EIR process has two (2) distinct phases: The Scoping Phase and the Environmental Impact Assessment (EIA) Reporting Phase (S&EIR Process). This report, the Draft Scoping Report (DSR) identifies potential biophysical, social and health aspects and impacts of the proposed development on the receiving environment and invites comments from stakeholders in the identification of key issues and areas of concern, in order to inform the S&EIR process.

The scoping phase concludes with the submission of a Scoping Report to the Competent Authority (CA) for acceptance. If accepted, the CA will instruct GCS to commence the EIR phase. This report represents the draft version of the Scoping Report that will be made available for public comment.

As per the requirements of the NEMA EIA Regulations (2014, as amended), this DSR has been issued for public participation in terms of GNR 326, Regulation 43. All interested and affected parties (I&APs) are required to register as stakeholders to enable them to comment during this Public Participation Process (PPP). This PPP provides an opportunity to comment and raise any concerns or suggestions in respect of the Proposed Project. All comments received during the PPP will be recorded and addressed within the Scoping Comments and Responses Report (CRR) as well as the EIA phase of the project. This DSR will be available for comment for 30 days from 24 November 2023 to 16 January 2024, as stipulated by the NEMA EIA Regulations (2014, as amended).

Your comment on the Draft Scoping Report

This DSR is available to all registered I&APs for public review and comment from 24 November 2023 (comment period ending 16 January 2024) as follows:

Printed Copies	
Piet Retief Library, 10B Retief Street	Maquasa East Security Office, Maquasa East Mine
Thusong Service Centre, Driefontein Community	
Electronic Copy	
Website download	https://www.gcs-sa.biz/public-documents/

Any comments on the DSR must be submitted in writing or email (including any additional supporting material) on or before **16 January 2024** directly to GCS Water and Environment (Pty) Ltd by means of the following:

Attention: Gerda Bothma
Tel: 011 803 5726
E-mail: gerdab@gcs-sa.biz

PO Box 2597
Rivonia
Johannesburg
2128

CONTENTS PAGE

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

ABBREVIATIONS AND ACRONYMS

BID	Background Information Document
CDF	Co-disposal facility
EMP	Environmental Management Plan
EMPr	Environmental Management Programme
ESR	Environmental Scoping Report
DMRE	Department of Mineral Resources and Environment
DSR	Draft Scoping Report
DWS	Department of Water and Sanitation
EAP	Environmental Assessment Practitioner
DFFE	Department of Forestry, Fisheries and the Environment
EIA	Environmental Impact Assessment
ELWU	Existing Lawful Water Use
EMP	Environmental Management Plan
GA	General Authorisation
GSDM	Gert Sibande District Municipality
GNR	Government Notice Regulation
I&AP	Interested and Affected Parties
IBA	Important Bird and Biodiversity Areas
IHAS	Invertebrate Habitat Assessment System
IWULA	Integrated Water Use License Application
IWWMP	Integrated Wastewater Management Plan
LOM	Life of Mine
MAE	Mean Annual Evaporation
mamsl	Metres above mean sea level
MAR	Mean Annual Runoff
mbgl	Metres below ground level
MDEDET	Mpumalanga Department of Economic Development and Eco Tourism
MPRDA	Minerals and Petroleum Resource Development Act
MRA	Mining Right Area
Mtpa	Million tons per annum
NEM:WA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NHRA	National Heritage Resources Act, 1999 (Act 25 of 1999)

NWA	National Water Act, 1998 (Act No. 36 of 1998)
PPP	Public Participation Process
PCD	Pollution Control Dam
PES	Present Ecological Status
PSLM	Pixley ka Seme Local Municipality
ROD	Record of Decision
RoM	Run of Mine
SAHRA	South African Heritage Resources Agency
SANS	South African National Standards
SASS	South African Scoring System
SAWS	South African Weather Service
SAWQG	South African Water Quality Guidelines
SWMP	Storm Water Management Plan
TDS	Total Dissolved Solids
WWTP	Waste Water Treatment Plant

STRUCTURE AND CONTENT OF THIS REPORT

This Scoping Report has been prepared in compliance with Appendix 2 of the EIA Regulations (2014, as amended) and is divided into various chapters and appendices, the contents of which are outlined below.

CONTENTS OF THE SCOPING REPORT	RELEVANT SECTION IN THE REPORT
Details of – i. The EAP who prepared the report; and ii. The expertise of the EAP, including a curriculum vitae	Section 1.4 and Appendix B
The location of the activity, including – i. The 21 digit Surveyor General code for each cadastral land parcel; ii. Where available, the physical address and farm name; iii. Where the required information in terms of (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	Section 1.5
A plan which locates the proposed activity or activities applied for at an appropriate scale, or, if it is – i. A linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or ii. On land where the property has not been defined, the coordinates within which the activity is to be undertaken	Section 1.5 & 2
A description of the scope of the proposed activity, including – i. All listed and specified activities triggered; ii. A description of the activities to be undertaken, including associated structures and infrastructure;	Section 2 & 3.2
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 3
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 4
A full description of the process followed to reach the proposed preferred activity, site and location within the site, including – i. Details of all alternatives to be considered; ii. Details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs; iii. 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; iv. The environmental attributes associated with the alternatives focusing on geographical, physical, biological, social, economic, heritage and cultural aspects; v. 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; vi. 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; vii. 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 5

CONTENTS OF THE SCOPING REPORT	RELEVANT SECTION IN THE REPORT
viii. The possible mitigation measures that could be applied and level of residual risk; ix. The outcome of the site selection matrix; x. If no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and xi. A concluding statement indicating the preferred alternatives, including preferred location of the activity	
A plan of study for undertaking the environmental impact assessment process to be undertaken, including – i. A description of the alternatives to be considered and assessed with the preferred site, including the option of not proceeding with the activity; ii. A description of the aspects to be assessed as part of the environmental impact assessment process; iii. Aspects to be assessed by specialists; iv. A description of the proposed method of assessing the environmental aspects, including aspects to be assessed by specialists; v. A description of the proposed method of assessing duration and significance; vi. An indication of the stages at which the competent authority will be consulted; vii. Particulars of the public participation process that will be conducted during the environmental impact assessment process; and viii. A description of the tasks that will be undertaken as part of the environmental impact assessment process; ix. 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
An undertaking oath or affirmation by the EAP in relation to – i. The correctness of the information provided in the report; ii. The inclusion of comments and inputs from stakeholders and interested and affected parties; and iii. Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties;	Section 11 Appendix B
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;	Section 11
Where applicable, any specific information required by the competent authority; and	N/A
Any other matter required in terms of section 24(4)(a) and (b) of the Act.	N/A

1 INTRODUCTION

1.1 Background

Kangra Coal (Pty) Ltd's (Kangra) Maquasa mining operation is located near Piet Retief within the Mpumalanga Province. The mining area is situated approximately 45km west of Piet Retief and just off the N12 national road on a secondary road leading to the Heyshope Dam. The Maquasa mining operations is made of the following mining areas:

- Maquasa East;
- Maquasa West; and
- Nooitgesien.

All these activities are undertaken and authorised under Mining Right (MR) MP30/5/1/23/2/1/133EM from the Department of Mineral Resources and Energy (DMRE).

Refer to **Figure 1-1** for a regional locality map.

All mining and project related infrastructure is located at Maquasa East (MQE) and includes a coal washing plant and associated infrastructure. This plant is used for the processing of all coal mined from Maquasa West and the Nooitgesien opencast mining area. No mining is taking place at Maquasa East as all of the coal reserves have already been mined.

The following infrastructure is located at MQE:

- Offices;
- Workshop & ancillary buildings;
- Existing Discard Dump;
- Beneficiation Plant;
- ENPROTEC Plant;
- Diesel Storage Facilities;
- Dirty water containment facilities;
- Maquasa East Adit;
- Haul roads;
- Powerlines;
- Conveyors and associated service roads (transporting mined coal to the Maquasa East processing plant);
- Access Roads;

- Pipeline (transporting water to the Maquasa East underground storage area);
- Crushers;
- Washing and screening plant; and
- Overburden and stockpile (i.e. topsoil, run of mine ore, product) dumps.

Kangra intends to construct a wastewater treatment plant (WWTP) for the treatment of effluent, and a new co-disposal facility (CDF), including supporting and associated infrastructure, at their Maquasa East (MQE) Operations.

To enable the implementation of the proposed projects, Kangra needs to acquire the necessary environmental approvals. GCS Water and Environment (Pty) Ltd (GCS) has been appointed as the independent Environmental Assessment Practitioner (EAP) to compile and submit the required documentation for the Integrated Environmental Application (IEA) by Kangra Coal (Pty) Ltd for:

- An IEA and Waste Management License (WML) through a Scoping and Environmental Impact Reporting (S&EIR) process and the compilation of an Environmental Management Programme (EMPr), in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA), National Environmental Management: Waste Act, 2008 (Act 59 of 2008) (NEMWA), and Environmental Impact Assessment (EIA) Regulations (2014, as amended) (IEA Application); and
- An Integrated Water Use License (IWUL), in terms of the NWA.

1.2 Project Overview

An overview of the proposed projects is provided below.

1.2.1 Wastewater Treatment Plant

The purpose of the proposed wastewater treatment plant (WWTP) is to treat decant water as well as surplus contaminated water within the mining operations. MQE is currently decanting clear groundwater from old underground workings at an average rate of 1 800m^3/d. The WWTP will employ 'active' treatment of the wastewater as it was found that passive treatment is not feasible nor possible due to decant point's location, the high flow rates and the discharge quality required. Brine resulting from the WWTP will be piped and stored in a new proposed brine pollution control dam (Brine PCD). Treated effluent from the WWTP will be discharged to the Heyshope Dam via an underground pipeline from the treatment plant to the dam. Access to the WWTP and associated pipelines will be through existing roads.

1.2.2 Co-disposal Facility

The proposed co-disposal facility (CDF) falls within the exact footprint of the previously authorized (MDARDLEA Ref: 17/2/3/GS-240) MQE Discard Dump (DD).

As a result of changing operational requirements, and the lapsing of the previous authorisation, there is now a need to obtain a WML in terms of the NEMWA for the proposed CDF at MQE.

The CDF will accommodate discard produces from the beneficiation plant, slurry/filter cake and potentially brine from the WWTP.

The CDF's design will be similar to the authorized discard dump: a three-compartment side hill-type facility with a footprint of approximately 65ha. A phased development approach, over a period of 20 years, is envisaged: Phase 1 – 7 years; Phase 2 – 7 years and Phase 3 – 6 years capacity.

1.3 Authorizations Related to the Project

The following list is a summary of the authorizations currently held by Kangra in respect of the MQE Operations. (Please note, other, non-related authorizations have not been included in this list):

- Kangra Maquasa Operations MR (Reference No.: MP30/5/1/23/2/1/133EM) issued by the Mpumalanga DMRE on the 13th of August 2014.
- An Integrated Water Use License (License No. 11/W51B/ACGIJ/4718) issued in terms of the NWA, by the Department of Water and Sanitation (DWS), on the 23rd of October 2017 for:
    - Section 21(a) – Taking of water from a water resource;
    - Section 21(b) – Storing of water;
    - Section 21(c) – Impeding or diverting the flow of water in a watercourse;
    - Section 21(g) – Disposing of waste in a manner which may detrimentally impact on a water resource;
    - Section 21(i) – Altering the bed, banks, course or characteristics of a watercourse; and
    - Section 21(j) - Removing, discharging or disposing of water found underground.
- An IWUL (License No. 11/W51B/CGI/4938) issued in terms of the NWA, by the DWS on the 4th of April 2018 for the new discard dump for:
    - Section 21(c) – Impeding or diverting the flow of water in a watercourse;
    - Section 21(g) – Disposing of waste in a manner which may detrimentally impact on a water resource;

- Section 21(i) – Altering the bed, banks, course or characteristics of a watercourse.

- Environmental Authorisation (EA) (Reference No.: 17/2/3 GS-240) for the MQE Discard Dump, issued by the Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs (MDARDLE) on the 14th of June 2016.

1.4 Details of Applicant and Environmental Assessment Practitioner

1.4.1 Applicant

The details of the Applicant are provided in **Table 1-1** below.

Table 1-1: Details of the Applicant.

ITEM	DETAILS
Company Name	Kangra Coal (Pty) Ltd
Company Representative	Pierre Louw
Contact Person	Niketiwe Dlamini
Telephone No.	+27 (17) 730 6200
Facsimile No.	+27 (17) 826 5284
E-mail Address	Niketiwe.dlamini@kangracoal.co.za
Postal Address	Kangra Group (Pty) Ltd, P.O. Box 745, Piet Retief

1.4.2 Environmental Assessment Practitioner

GCS has been appointed as the independent Environmental Assessment Practitioner (EAP) by Kangra Coal (Pty) Ltd to undertake the environmental applications required for the proposed projects on behalf of the Applicant. The contact details of the EAP are provided in **Table 1-2** and the EAP's CV is attached as **Appendix B**.

Table 1-2: Details of the EAP.

ITEM	DETAILS
Company Name	GCS Water and Environmental (Pty) Ltd
Company Representative	Gerda Bothma
EAP	Reneé Steele
Telephone No.	+27 (0)11 803 5726
Facsimile No.	+27 (0)11 803 5745
E-mail Address	gerdab@gcs-sa.biz
Postal Address	PO Box 2597, Rivonia, 2128

Mrs Bothma is the Environmental Unit Manager at GCS since 2019 has over 25 years' experience within the environmental and waste management field. Mrs Bothma has been involved in several engineering projects as the EAP as well as the Environmental Control Officer during construction, working closely with the Occupational Health and Safety Officer. She also has been involved in projects where waste licensing and water use licensing processes formed an integral part of the services offered and has extensive experience in

environmental auditing and compliance monitoring. Mrs Bothma is the Project Manager overseeing the quality control in respect of the application processes.

Renee Steele is an Environmental Scientist, registered as a Professional Natural Scientist (Pri. Sci. Nat. 008920) with the South African Council for Natural Scientific Professions (SACNASP). Renee is registered EAP (Reg. No. 2022/48470 with the Environmental Assessment Practitioners Association of South Africa (EAPSA).

Ms Steele has 15 years' experience as an EAP. Renee has been involved in a wide range of environmental related projects, including environmental impact assessments; mining right, mining permit, prospecting permit applications; water use licence applications; environmental performance auditing and Environmental Control Officer (ECO) work.

GCS has no conflict of interest related to the contents of this Report. GCS has no personal financial interests in the property and/or activity being assessed in this report. GCS has no personal or financial connections to the relevant property owners, developers, planners, financiers or consultants of the property or activity, other than fair remuneration for professional services rendered for this Report to the CA. GCS declares that the opinions expressed in this Report are independent and a true reflection of their professional expertise. As such, GCS meets the requirements of an independent EAP as per the EIA Regulations 2014.

1.5 Project Location

As mentioned previously, MQE Operations is located within the Mpumalanga Province and operates under one (consolidated) MR, within which the proposed projects are located. The MR area fall within the jurisdiction of the Mkhondo Local Municipality (MLM) and Pixley Ka Seme Local Municipality (PSLM) of the Gert Sibande District Municipality (GSDM). Refer to Figure 1-1 below. Table 1-3 provide further information regarding the location of the proposed projects and their affected properties including the Surveyor-general (SG) 21-digit site information for the parent farms, whilst Figure 1-2 provides a visual representation of their location.

Table 1-3: Property, SG & Ownership details

Project	Property	SG Code	Local Municipality
Wastewater Treatment Plant (WWTP)	Remaining Extent (RE) of the farm Roodekraal 21HT	T0HT00000000002100000	Mkhondo LM
WWTP Brine PCD & pipeline	RE of the farm Roodekraal 21HT	T0HT00000000002100000	Mkhondo LM
	Farm Roodekraal 21 HT	T0HT00000000002100000	Mkhondo LM

WWTP discharge pipeline	RE of the farm Roodekraal 21HT	T0HT00000000002100000	
Co-Disposal Facility (CDF)	RE of the farm Rooikop 18HT	T0HT00000000001800000	Pixley Ka Seme LM
	RE of the farm Maquasa 19HT	T0HT00000000001900000	
CDF pipelines & external haul roads	RE of the farm Rooikop 18HT	T0HT00000000001800000	Pixley Ka Seme LM
	RE of the farm Roodekraal 21HT	T0HT00000000002100000	Mkhondo LM

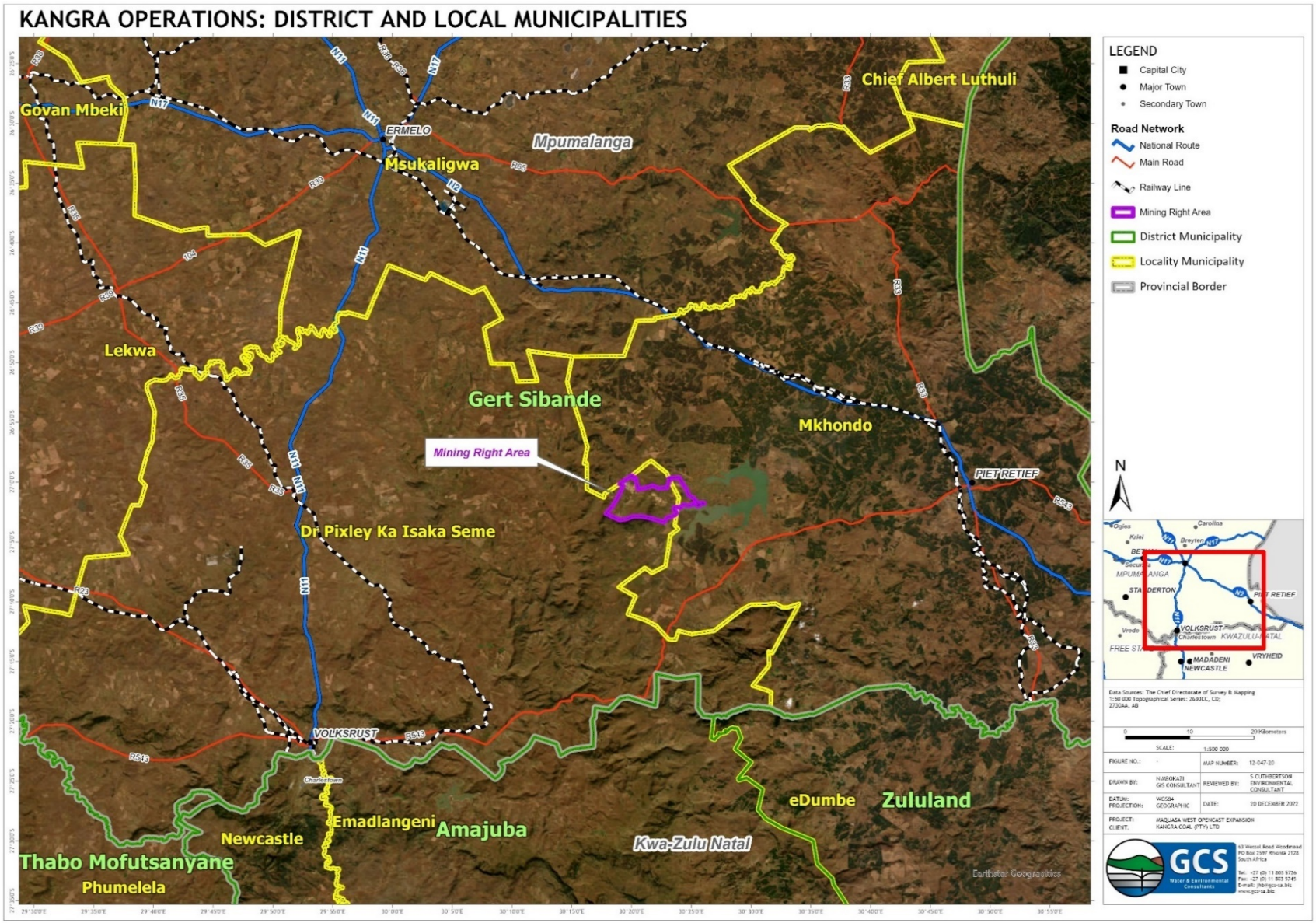


Figure 1-1: Regional Locality of Kangra Operations.

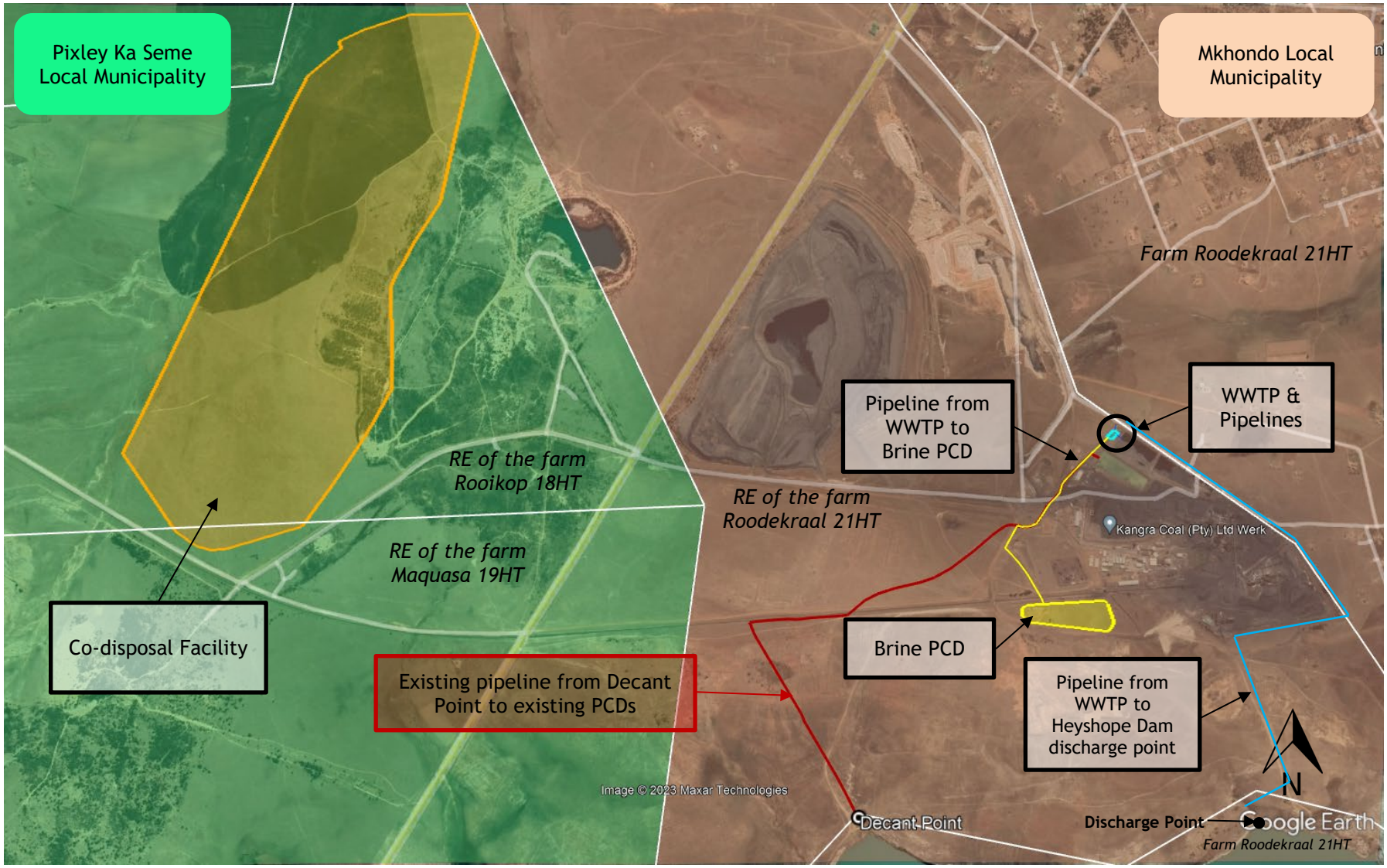


Figure 1-2: Location of proposed MQE Projects.

2 PROJECT DESCRIPTION

As indicated in Section 1.2, MQE is intending to construct a wastewater treatment plant (WWTP) and co-disposal discard facility (CDF), with associated infrastructure, at their east operations' site. Further details are provided below.

2.1 Proposed WWTP & Associated Infrastructure

Decant is currently observed in the form of clear groundwater discharge emanating from the old underground workings at MQE close to the Heyshope Dam (refer to Figures below). This decant is observed at an elevation range of approx. 1303 to 1306 mamsl and is contained in an unlined contamination dam. This excess decant is currently pumped from the unlined dam back to the MQE PCDs. Based on available data from previous studies undertaken at the mine decant observed emanating from the old workings occurs at a rate ranging from 1 220 to 2 700 m^3/d (average 1 800 m^3/d), depending on the rainfall season.

Kangra intends to upgrade the current contamination dam with a correctly lined dam as approved by the DWS to prevent any seepages onto the Heyshope Dam. The decant, as well as other surplus water generated at MQE, will be pumped into the proposed WWTP that will be situated close to the MQE PCDs. Brine resulting from the WWTP will be piped and stored in a new proposed brine pollution control dam (Brine PCD). Treated effluent from the WWTP will be discharged to the Heyshope Dam via an underground pipeline from the treatment plant to the dam. Access to the WWTP and associated pipelines will be through existing roads. Construction and operation of the discussed infrastructure will trigger listed activities that will require authorisation.

2.1.1 Description of the proposed WWTP & Associated Infrastructure

Borehole "GCS016" is decanting clear, though contaminated underground water with elevated sulphate levels, directly from the MQE underground workings into an unlined contamination dam next to the Heyshope Dam as depicted in **Figure 2-1** and **Figure 2-2** below. Potential decant management/remedial actions were identified in 2018 by GCS as part of the Numerical Groundwater and Transport Model Update for the Maquasa Operations. Various management/remedial actions were investigated and are summarised below:

- Evaporation of decant over the PCDs;
- Passive treatment via an artificially constructed wetland system; and
- Active treatment via a wastewater treatment plant.

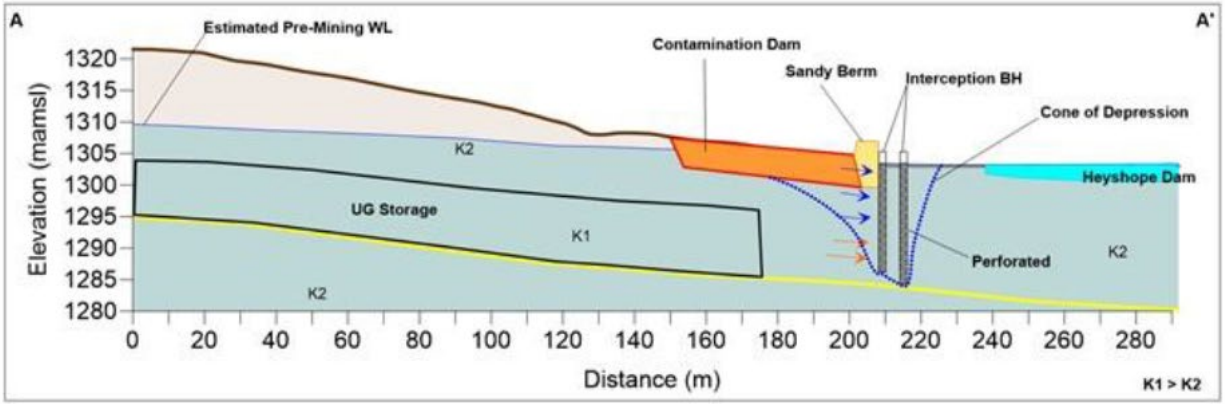


Figure 2-1: Unlined contamination dam

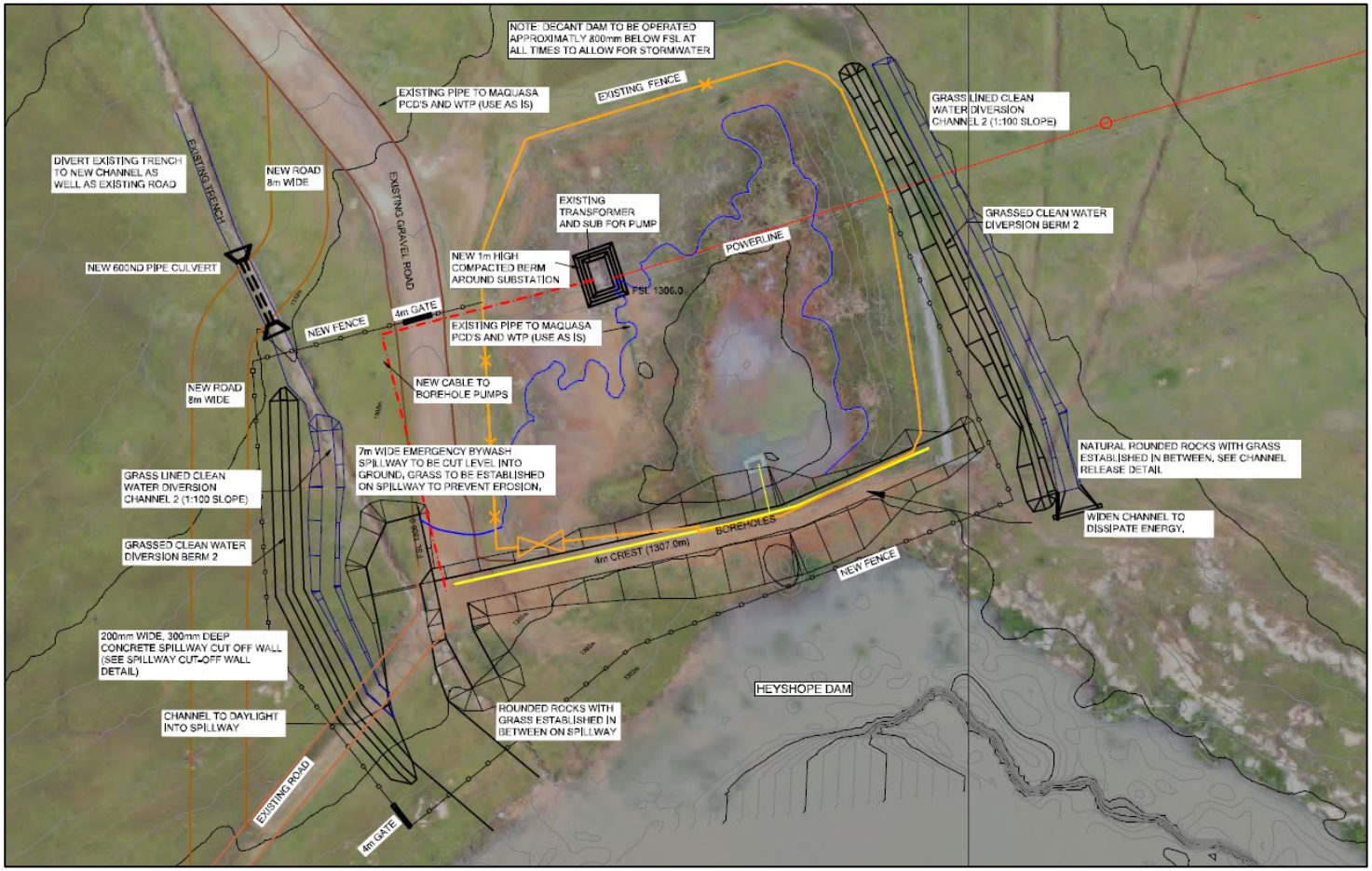


Figure 2-2: Decant point & contamination dam layout.

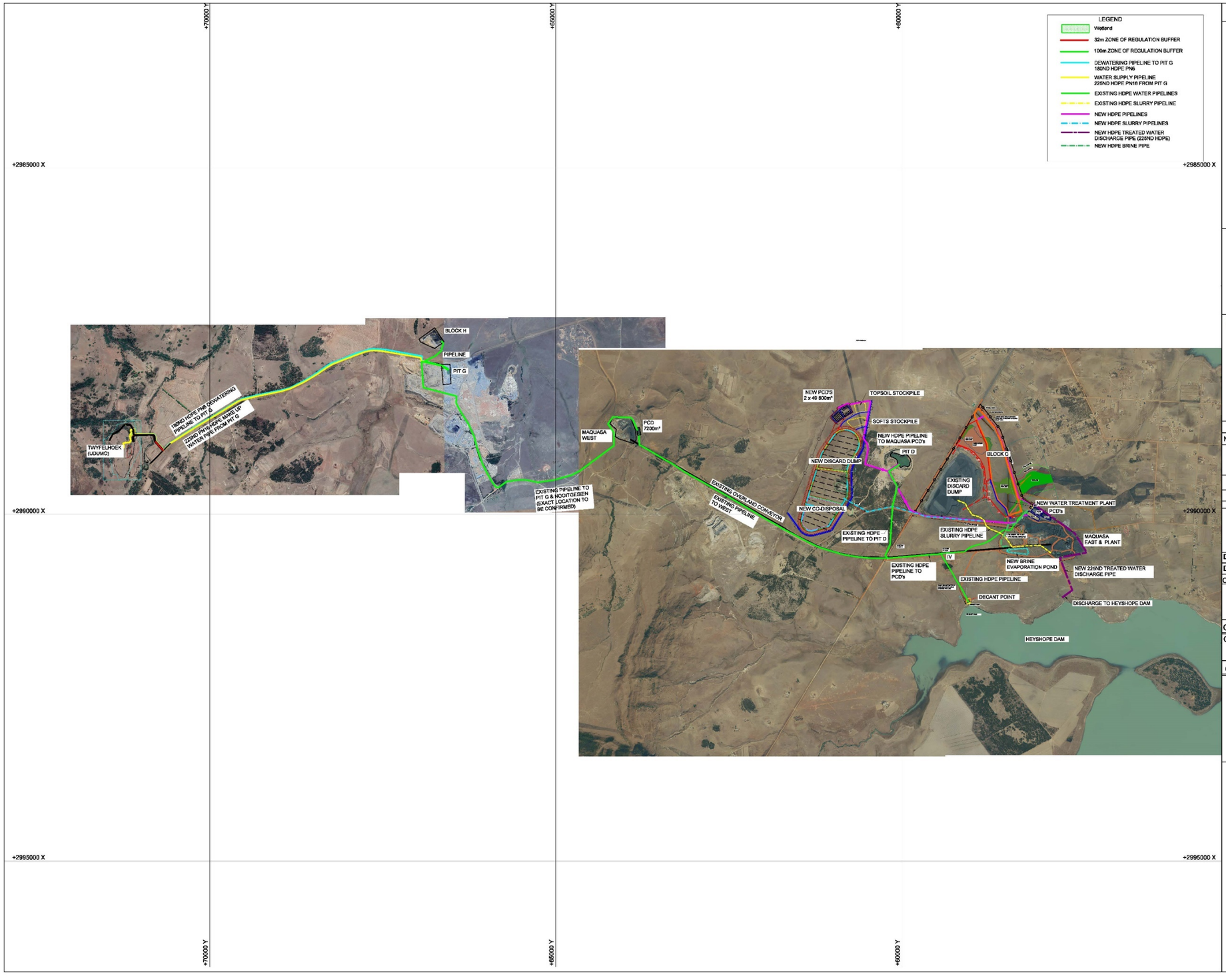


Figure 2-3: MQE Water Treatment Master Layout Plan.

It was found that active treatment is the most feasible solution due to the decant point location, high contaminated water flow rates and required discharge water quality. Additionally, with evaporation, the weather would determine the efficiency of the water management system, and the operation have time (can operate a maximum of 12 hours per day) and spatial (can only be undertaken over the existing PCDs due to salt load) constraints.

Additionally, as indicated previously, the WWTP needs to accommodate surplus contaminated water within the entire mining operation. In accordance with the mine wide water balance, flow rates of 4 500m^3 per day (52l/s) of contaminated water is to be treated to limit spills from the existing and proposed PCD's, to less than once in 50 years, in compliance with Government Notice (GN) 704 of the NWA. Refer to **Figure 2-3** above for an overview of the site wide MQE water treatment as depicted in the MQE Master Layout Plan compiled by GFK Consulting Engineers (DWG Reference No.: G2021/03/02/100 REV1).

Detail design of the proposed WWTP is currently being undertaken and a containerised reverse osmosis (RO) package plant is proposed; located next to the existing MQE PCDs to which all surplus water is currently routed. Refer to **Figure 2-4** below.

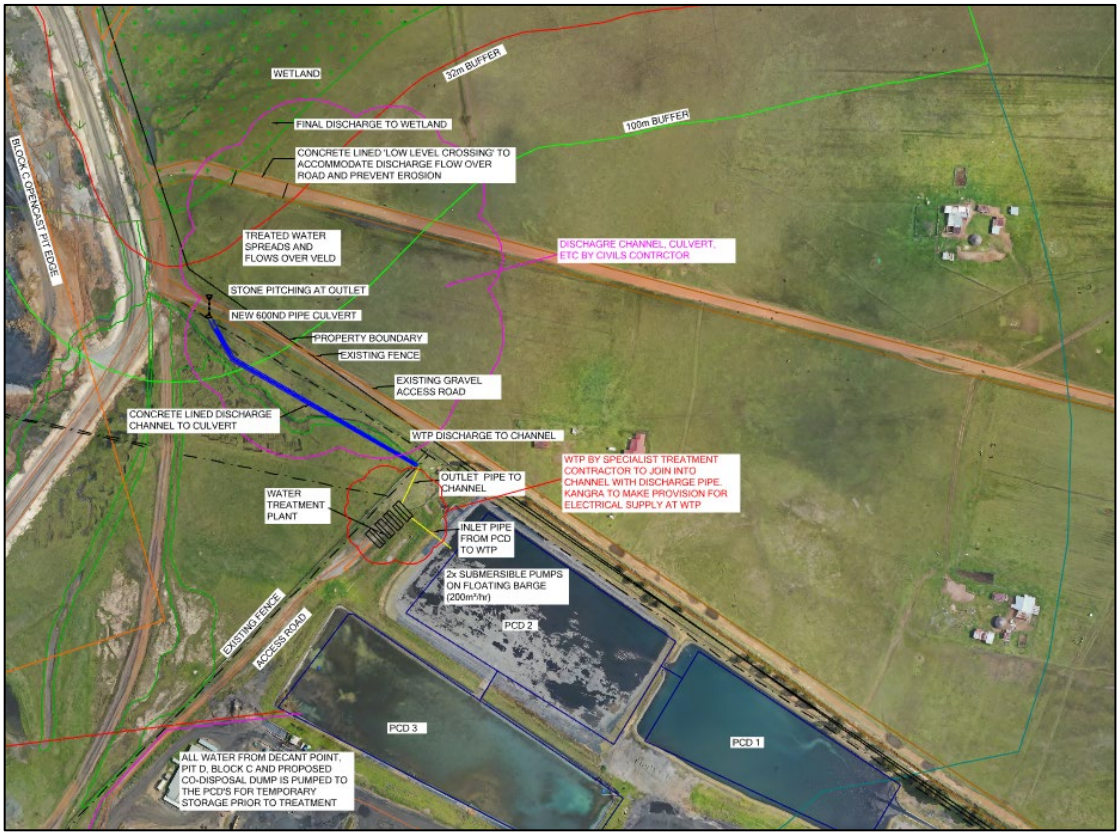


Figure 2-4: WWTP layout.

As part of the RO WWTP, a brine filter press is to be implemented to manage the resultant brine by product. The filter press creates a slurry paste where up to 90% water can be

recovered and remaining 10% brine slurry. Filter cake is to be co-disposed at the new CDF and the remaining slurry will be pumped via an aboveground pipeline and stored in the proposed Brine PCD (lined with Class C liner), located in a previously disturbed area. Refer to **Figure 2-5** below.

Due to the high volumes of contaminated water being treated, discharging the treated effluent directly at the WWTP location is not feasible as it will potentially result in significant erosion, disturbance to human settlements in close proximity and significant ecological degradation of the sensitive wetland ecosystems identified within 500m from the WWTP.

It is therefore proposed that treated effluent be discharged to the Heyshope Dam via an underground pipeline, with erosion protection and energy dissipation in the form of a concrete and stone pitching headwall at the point of inflow into the dam. Refer to **Figure 2-6** below.

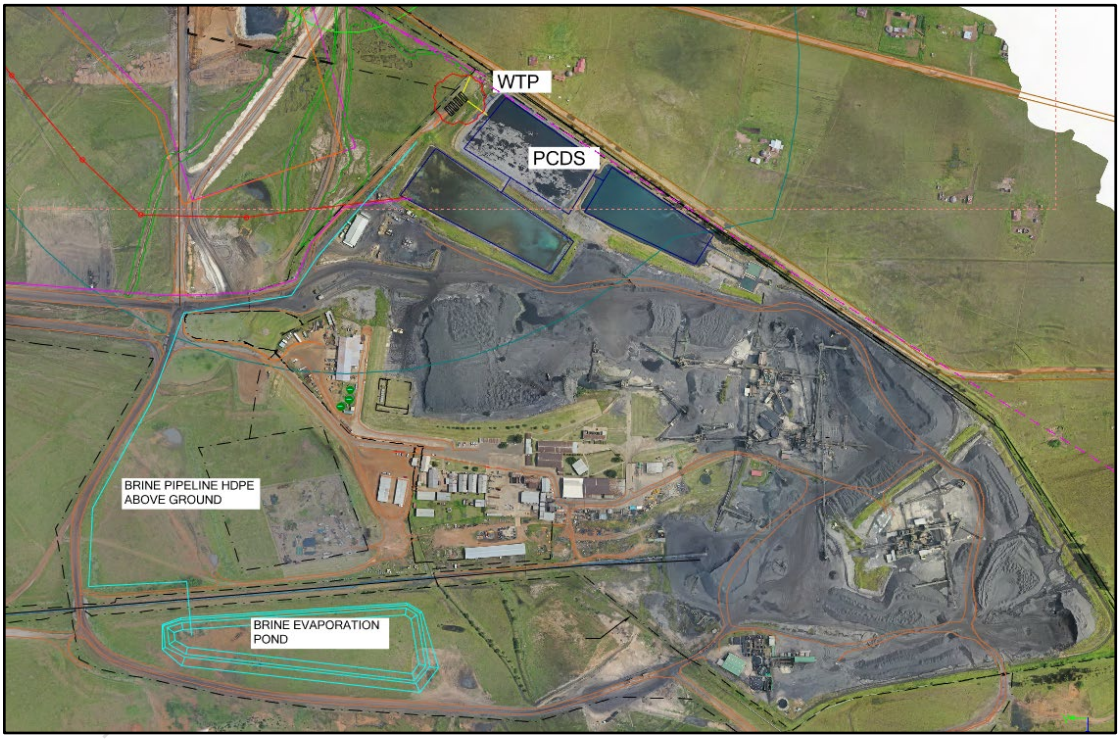


Figure 2-5: Brine PCD & pipeline layout.

Figure 2-6: WWTP discharge pipeline.

As there are currently no Resource Quality Objectives (RQO) for the Usuthu Catchment Management Area, the proposed discharge water quality as tabulated in Table 2-1 below, for the design of the WWTP has been based on the following:

- South African Water Quality Guidelines (DWS, 1996).
- SANS 241:2015.
- World Health Organisation (WHO) standard.
- Aquatic standard EPA.
- Baseline river quality in nearby streams not affected by mining.
- Current Heyshope dam water quality.
- Block C WUL as guideline to what has previously been approved by DWS for the Kangra operations.
- Maquasa East WUL as guideline to what has previously been approved by DWS for the Kangra operations.

Table 2-1: Recommended Effluent Quality.

DETERMINANT	UNITS	DOMESTIC STANDARDS		Maquasa Operations WUL water quality (groundwater)	Block C WUL water quality (groundwater). Table 3	Baseline river at Balgarthen (Based on data range from 2010-2020 at monitoring points 963,966)	Heyshope dam point	MAXIMUM RECOMMENDED FOR DAM.
		SANS 241	WHO					
pH	pH units	5-9.7		6.5-8	6.5-9	5.7-8.9	7.5	6.5-8
Dissolved Oxygen (DO)/BOD	mg/ℓ					80% -120% of saturation		80% -120% of saturation
Electrical Conductivity	mS/m	170		27	23	22	14.72	40
Chloride	mg Cl/ℓ	300	250	3	3	14	7.04	100
Ammonia as N	mg N/ℓ	1.5	1.5			0.11	0.05	0.9
Ammonia	mg NH3/ℓ					N/A		0.2
Ammonium	mg NH4/ℓ					N/A		Test not required
Chromium IV	µg CR IV/ℓ					N/A		7
Cyanides Free and Total	µg Cn/ℓ	200	70			200		2
Dissolved Aluminium	µg Al/ℓ	300		620		2230	1.26	10
Dissolved Antimony	µg Sb/ℓ	20	20			N/A		20
Dissolved Arsenic	µg As/ℓ	10	10	1		N/A		10
Dissolved Beryllium	µg Be/ℓ	700				N/A		700
Dissolved Barium	µg Ba/ℓ					N/A		100
Dissolved Boron	µg B/ℓ	2400	2400			N/A		500
Dissolved Cadmium	µg Cd/ℓ	3	3	10		N/A		0.2
Dissolved Calcium	mg Ca/ℓ	150		29	27	73	10.54	58
Dissolved Cobalt	µg Co/ℓ	500				N/A		5
Dissolved Copper	µg Cu/ℓ	50	50			N/A		0.3
Dissolved Chromium	µg Cr/ℓ	2000	2000			N/A		100
Dissolved Iron	µg Fe/ℓ	2000	2000	2330	300	380	310	300
Dissolved Lead	µg Pb/ℓ	10	10	10		N/A		10
Dissolved Lithium	µg Li/ℓ					N/A		2500
Dissolved Manganese	µg Mn/ℓ	400	400	220	200	470	10	180
Dissolved Magnesium	mg Mg/ℓ			9	82	9.22	6.54	82
Dissolved Mercury	µg Hg/ℓ	6	6			6		1.3
Dissolved Nickel	µg Ni/ℓ	70	70			N/A		30
Dissolved Potassium	mg K/l	50		3		3.2	2.44	50
Dissolved Selenium	µg Se (vi)/ℓ	40	10			10		10
Disolved Sodium	mg Na/ℓ	200	50	21		9.1	7.57	50
Disolved Uranium	µg U/ℓ	30				30		30
Dissolved Vanadium	µg V/ℓ	200				200		200
Dissolved Zinc	µg Zn/ℓ	5000	3000	20				2
Fluoride	mg F/ℓ	1.5	1.5	0.31	0.3	0.92	0.07	0.75
Nitrogen as N	mg N/ℓ					0.5		0.5
Nitrate	mg NO3/ℓ	11	50	0.24	0.5	1.1	0.26	11
Nitrite	mg NO2/ℓ	0.9				0.7		0.9
Phosphorus as P	mg P/ℓ					N/A		0.03
Phosphate (ortho phosphate)	mg PO4/ℓ					N/A		0.1
Sulphate	mg SO4/ℓ	500		45	25	45	16.9	45
Total Alkalinity	mg CaCO3/ℓ			100	93	68	50.86	100
Total Dissolved Solids	mg/ℓ 180°C	1200		177	130	148	97.43	130

2.1.2 Location of the proposed WWTP & Associated Infrastructure

The WWTP and associated infrastructure will be located on the farm Roodekraal 21 HT and the Remaining extent of the farm Roodekral 21HT within the Mkhondo Local Municipal area, which falls under the current MQE MR and is owned by Kangra Coal (Pty) Ltd.

The Surveyor-general 21-digit site information for the above property on which the WWTP and Brine PCD and their associated infrastructure will be located is provided below:

Property	SG Code	Local Municipality
Remaining Extent (RE) of the farm Roodekraal 21HT	T0HT00000000002100000	Mkhondo LM
Farm Roodekraal 21HT	T0HT00000000002100000	Mkhondo LM

The Global Positioning System (GPS) coordinates for the proposed WWTP and associated infrastructure is provided in the table below.

	Latitude	Longitude
WWTP Corner Point 1	27° 1'8.67"S	30°24'51.19"E
WWTP Corner Point 2	27° 1'9.11"S	30°24'51.72"E
WWTP Corner Point 3	27° 1'9.93"S	30°24'50.83"E
WWTP Corner Point 4	27° 1'9.51"S	30°24'50.32"E
WWTP Centre Point	27° 1'9.28"S	30°24'51.05"E
WWTP Inlet Pipeline Start	27° 1'9.76"S	30°24'52.19"E
WWTP Inlet Pipeline End	27° 1'9.24"S	30°24'51.51"E
WWTP Outlet Pipeline Start	27° 1'8.76"S	30°24'51.23"E
WWTP Outlet Pipeline End	27° 1'7.95"S	30°24'52.59"E
Pipeline to Brine PCD Start	27° 1'9.61"S	30°24'50.43"E
Pipeline to Brine PCD Middle	27° 1'15.99"S	30°24'43.92"E
Pipeline to Brine PCD Turn Point	27° 1'22.31"S	30°24'36.59"E
Pipeline to Brine PCD End	27° 1'28.73"S	30°24'41.40"E
Brine PCD Corner Point 1	27° 1'28.23"S	30°24'49.05"E
Brine PCD Corner Point 2	27° 1'28.53"S	30°24'49.62"E
Brine PCD Corner Point 3	27° 1'30.79"S	30°24'50.40"E
Brine PCD Corner Point 4	27° 1'31.76"S	30°24'49.54"E
Brine PCD Corner Point 5	27° 1'30.65"S	30°24'39.48"E
Brine PCD Corner Point 6	27° 1'29.94"S	30°24'38.57"E
Brine PCD Corner Point 7	27° 1'29.06"S	30°24'38.51"E
Brine PCD Corner Point 8	27° 1'28.71"S	30°24'39.43"E
WWTP Discharge Pipeline Start	27° 1'7.95"S	30°24'52.59"E
WWTP Discharge Pipeline Turn Point 1	27° 1'21.20"S	30°25'13.86"E
WWTP Discharge Pipeline Turn Point 2	27° 1'30.56"S	30°25'20.19"E
WWTP Discharge Pipeline Turn Point 3	27° 1'32.04"S	30°25'8.19"E
WWTP Discharge Pipeline Turn Point 4	27° 1'33.55"S	30°25'5.56"E
WWTP Discharge Pipeline Turn Point 5	27° 1'48.44"S	30°25'12.42"E
WWTP Discharge Pipeline End	27° 1'51.45"S	30°25'7.53"E

Refer to **Figure 2-7** for the approximate location of the proposed WWTW and associated infrastructure at MQE.

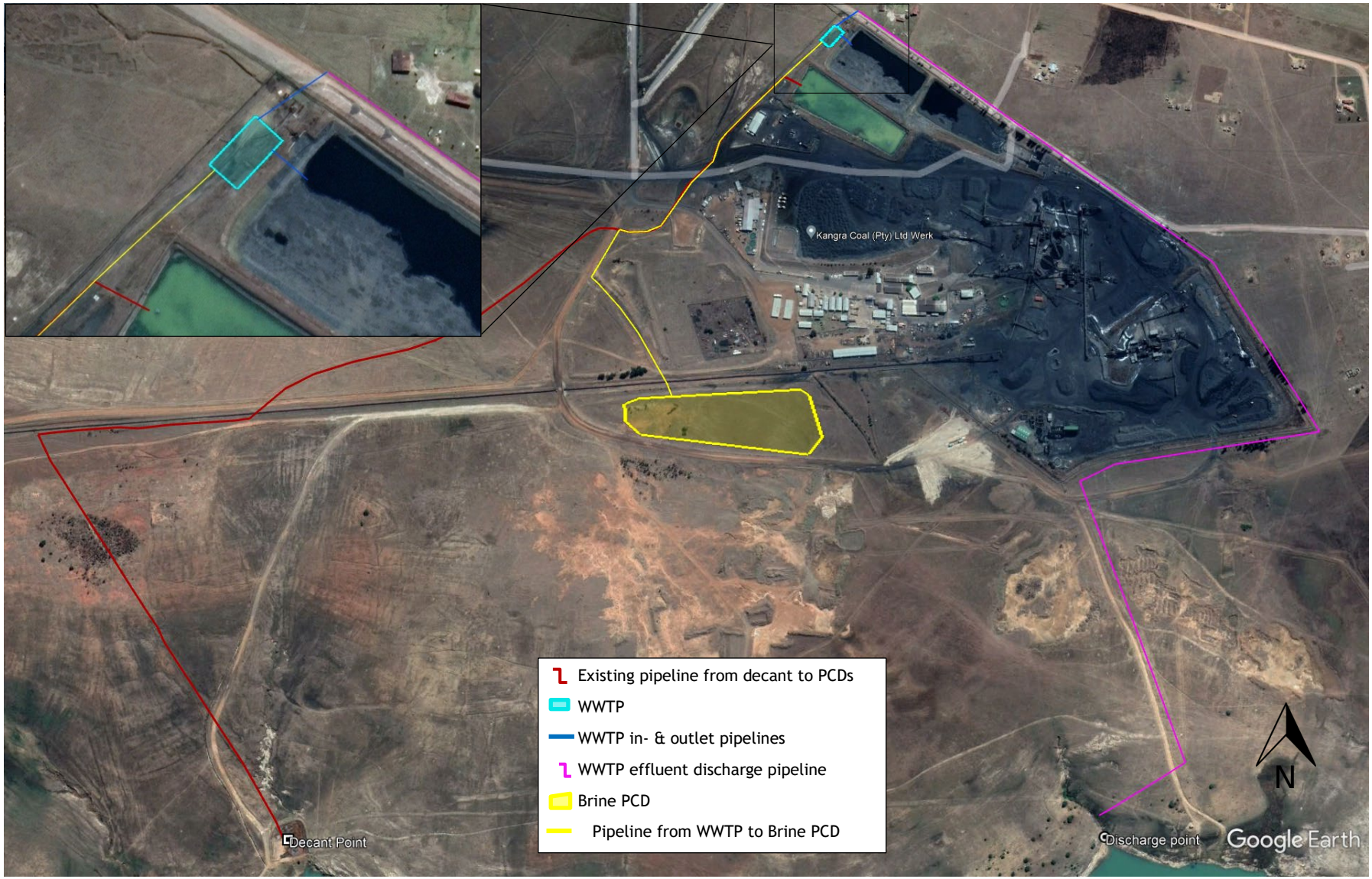


Figure 2-7: Locality overview of proposed WWTP, Brine PCD and pipelines.

2.2 Proposed Co-disposal Facility & Associated Infrastructure.

The proposed 75-hectare (ha) CDF will be designed to accommodate 20 million tonnes of discard, comprising a volume of 10 million m^3 over a period of 20 years. The proposed new CDF complex will be approximately 131ha in extent and include the disposal facility, various material stockpiles, a PCD, haul roads, new slurry & contaminated water pipelines, and stormwater management infrastructure such as trenches, channels and berms.

Further details are provided within this section and was extracted from the "Kangra Coal (Pty) Ltd Maquasa East Proposed New Discard Dump: Environmental Scoping Report" (DD ESR) compiled by GCS in August 2014; and the GFK Consulting Engineers' Conceptual Design for the CDF (DWG Reference: G2023/06/05-100). Construction and operation of the discussed infrastructure will trigger listed activities that will require authorisation.

2.2.1 Description of Proposed Co-disposal Facility

Layout and required infrastructure:

The conceptual layout of the proposed CDF is presented in **Figure 2-8**. The CDF complex footprint extent and locality is provided in **Figure 2-9** and it presents the preliminary boundary fence of the entire CDF complex.

At this stage, it is envisaged that the following infrastructure will be required:

- Boundary fence;
- Internal haul roads;
- Lined Discard Dump;
- Catchment Paddocks;
- Two (2) compartment, lined Pollution Control Dam (one compartment to be operated as empty);
- HDPE Slurry pipeline;
- HDPE Contaminated water pipeline;
- Topsoil & Softs Stockpiles; and
- Stormwater management infrastructure, such as berms and trenches.

Dimensions and life of the facility

The dimensions of the proposed new CDF which will be applied to the detail design of the facility are presented in Table 2-2.

Table 2-2: Dimensions of the proposed CDF.

	Description
Life of facility	20 years
Extent of Discard Dump	75 ha
Capacity of discard dump	5 280 000m^3
Final Volume of fines (slimes)	1 896 000m^3
Final height of Discard Dump	30-32m
Deposition rate	≅ 50ton/hour, 620 operating hours/month*
Estimated required capacity of PCD	100 000m^3

*Preliminary estimation based on figures obtained from MQE.

Proposed Disposal Methodology

According to the conceptual designs the preferred disposal methodology (refer to the project alternatives in section 5 of this report) is integrated 'dry' disposal.

This involves mixing the low moisture "filter cake" fine discard material with the coarse discard material in layers as per the conventional disposal methods. The integrated discard "dry" technique will reduce the permeability of the coarse discard and therefore a have a reduction in acid mine drainage (AMD). The discard material will be trucked to the dump via the gravel haul road to be constructed.

Seepage Control

Seepage control will be required to prevent groundwater contamination from the proposed CDF:

- The CDF will be lined. The liner specifications will be provided in the EIA Report;
- The coarse discard material will be graded and shaped to obtain controlled run-off for the collection of dirty water;
- Rehabilitation of the dump will be ongoing to reduce the dirty water catchment areas;
- A filter drain will be contracted around the perimeter of the dump to collect seepage, which will be directed to the lined PCD.

The efficiency of the seepage control system will be monitored by means of groundwater monitoring. A monitoring programme will be established prior to the construction phase based on the recommendations from the updated Geohydrological Investigation being undertaken by GCS.

Stormwater Management

A conceptual stormwater management plan (SWMP) will be compiled during the updating of the Hydrological Investigation being undertaken by GCS. This plan will include trenches to direct clean stormwater away from the discard dump area and berms to contain "dirty" runoff

within the CDF footprint will be directed to the PCD.

At this stage is envisaged that the PCD will require a volume of 100 00m^3, however this volume is subject to change based on more accurate information from the Hydrological Investigation.

The maximum area of the waste dump contributing to the polluted water system during the operating life will be when the downstream side of the dump is level with the upstream side. Upon closure of the dump, it is envisaged that this area will have reduced to zero when the entire site has been rehabilitated, resulting in a clean storm water run-off system.

Access to the facility

The CDF complex will be accessed via a 16m wide gravel haul road around the perimeter of the facility leading back to the coal washing plant at MQE.

Concurrent Rehabilitation

The rehabilitation of the dump will be ongoing during the operation of the proposed new CDF.

Rehabilitation will include the placement of topsoil and grass on the dump side slopes. The soil cover required will be specified in the final design report to be included in the EIA Report. The CDF will be graded and shaped to achieve a suitable long term profile. Following the completion of topsoiling and vegetating, the dirty water drainage from the exposed discard step-ins will be modified to clean water drainage.

2.2.2 Location of proposed Co-disposal Facility & Associated Infrastructure

The proposed CDF and its associated infrastructure will be located on the Remaining extent of the farms Rooikop 18HT and Maquasa 19HT within the Pixley Ka Seme Local Municipal area, both properties falling under the current MQE MR, owned by Kangra Coal (Pty) Ltd.

The Surveyor-general 21-digit site information for the affected properties are provided in the table below:

Property	SG Code	Local Municipality
Discard Facility		
RE of the farm Rooikop 18HT	T0HT00000000001800000	Pixley Ka Seme LM
RE of the farm Maquasa 19HT	T0HT00000000001900000	Pixley Ka Seme LM
CDF Associated Infrastructure		
RE of the farm Rooikop 18HT	T0HT00000000001800000	Pixley Ka Seme LM
RE of the farm Maquasa 19HT	T0HT00000000001900000	Pixley Ka Seme LM
RE of the farm Roodekraal 21HT	T0HT00000000002100000	Mkhondo LM

The GPS coordinates for the Co-disposal Facility is provided in the table below.

	Latitude	Longitude
CDF Corner Point 1	27° 0'18.91"S	30°23'26.69"E
CDF Corner Point 2	27° 0'21.26"S	30°23'28.09"E
CDF Corner Point 3	27° 0'42.04"S	30°23'23.57"E
CDF Corner Point 4	27° 0'51.76"S	30°23'17.42"E
CDF Corner Point 5	27° 1'4.23"S	30°23'17.83"E
CDF Corner Point 6	27° 1'19.90"S	30°23'6.71"E
CDF Corner Point 7	27° 1'22.52"S	30°22'55.23"E
CDF Corner Point 8	27° 1'11.55"S	30°22'42.71"E
CDF Corner Point 9	27° 0'26.60"S	30°23'5.23"E
CDF Corner Point 10	27° 0'23.12"S	30°23'9.65"E
CDF Corner Point 11	27° 0'22.21"S	30°23'9.30"E
CDF Corner Point 12	27° 0'18.89"S	30°23'18.64"E
CDF Centre Point	27° 0'49.19"S	30°23'6.74"E
CDF Slurry Pipeline Start	27° 1'30.81"S	30°25'1.46"E
CDF Slurry Pipeline Turn Point 1	27° 1'27.07"S	30°24'55.93"E
CDF Slurry Pipeline Turn Point 2	27° 1'27.92"S	30°24'41.55"E
CDF Slurry Pipeline Turn Point 3	27° 1'17.45"S	30°24'37.78"E
CDF Slurry Pipeline Turn Point 4	27° 1'9.78"S	30°23'37.78"E
CDF Slurry Pipeline Turn Point 5	27° 1'11.49"S	30°23'25.68"E
CDF Slurry Pipeline End	27° 1'3.91"S	30°23'12.40"E
CDF Contaminated Water Pipeline (CWP) Start	27° 0'26.40"S	30°23'6.76"E
CDF CWP Turn Point 1	27° 0'18.95"S	30°23'27.57"E
CDF CWP Turn Point 2	27° 0'47.52"S	30°23'19.00"E
CDF CWP Turn Point 3	27° 0'52.03"S	30°23'36.22"E
CDF CWP Turn Point 4	27° 0'59.48"S	30°23'40.85"E
CDF CWP Turn Point 5	27° 1'8.76"S	30°23'38.33"E
CDF CWP Turn Point 6	27° 1'13.20"S	30°23'55.71"E
CDF CWP Turn Point 7	27° 1'16.03"S	30°24'43.98"E
CDF CWP Turn Point 8	27° 1'11.46"S	30°24'47.94"E
CDF CWP End	27° 1'12.17"S	30°24'49.10"E
CDF External Haul Road 1 Start	27° 1'11.28"S	30°23'24.10"E
CDF External Haul Road 1 End	27° 1'6.46"S	30°23'15.27"E
CDF External Haul Road 2 Start	27° 1'8.87"S	30°23'38.00"E
CDF External Haul Road 2 Middle	27° 0'54.75"S	30°23'37.52"E
CDF External Haul Road 2 End	27° 0'47.88"S	30°23'18.41"E

Refer to **Figure 2-9** for the approximate location of the proposed Co-disposal Facility complex at MQE.

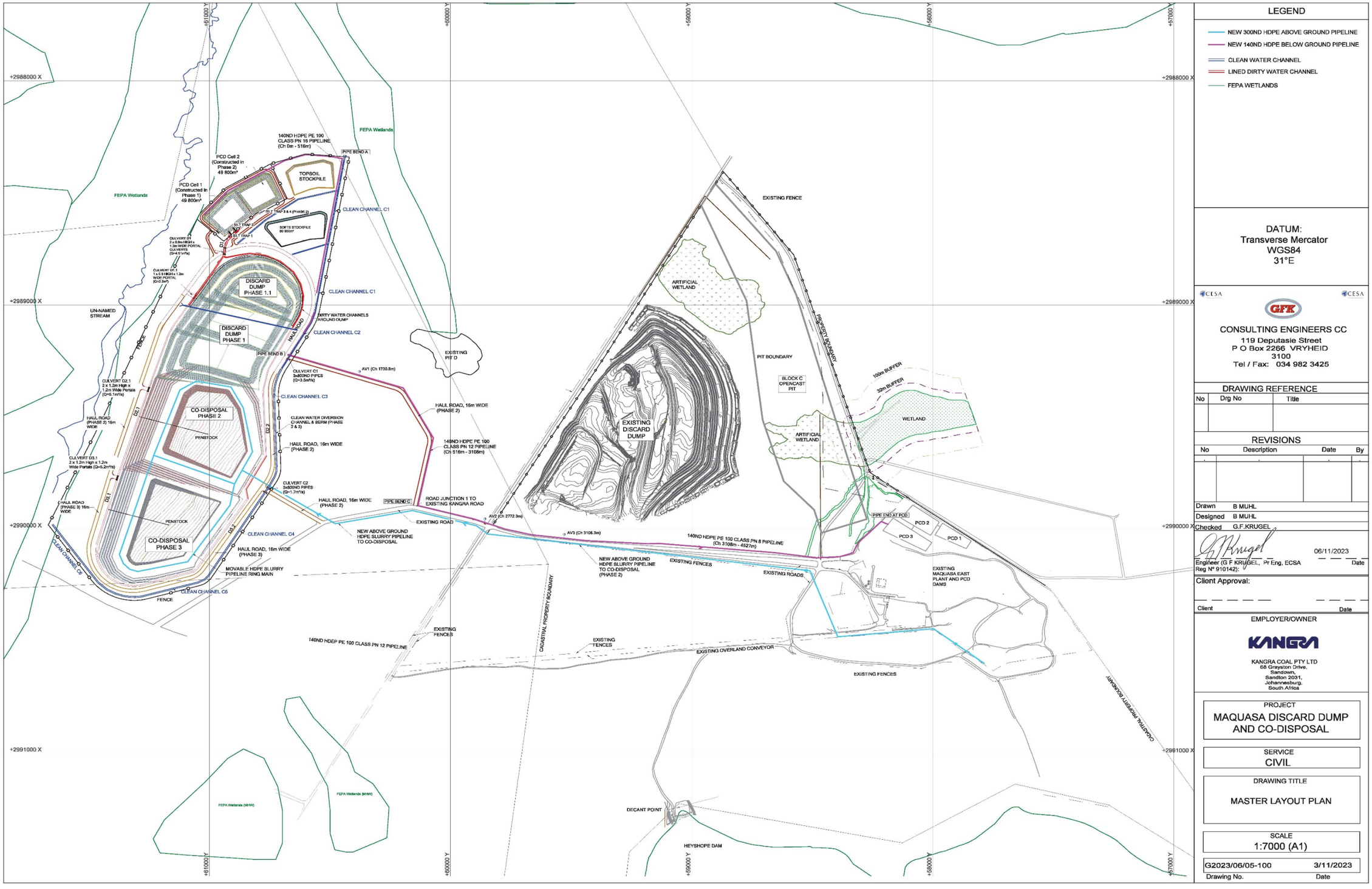


Figure 2-8: CDF Conceptual Layout

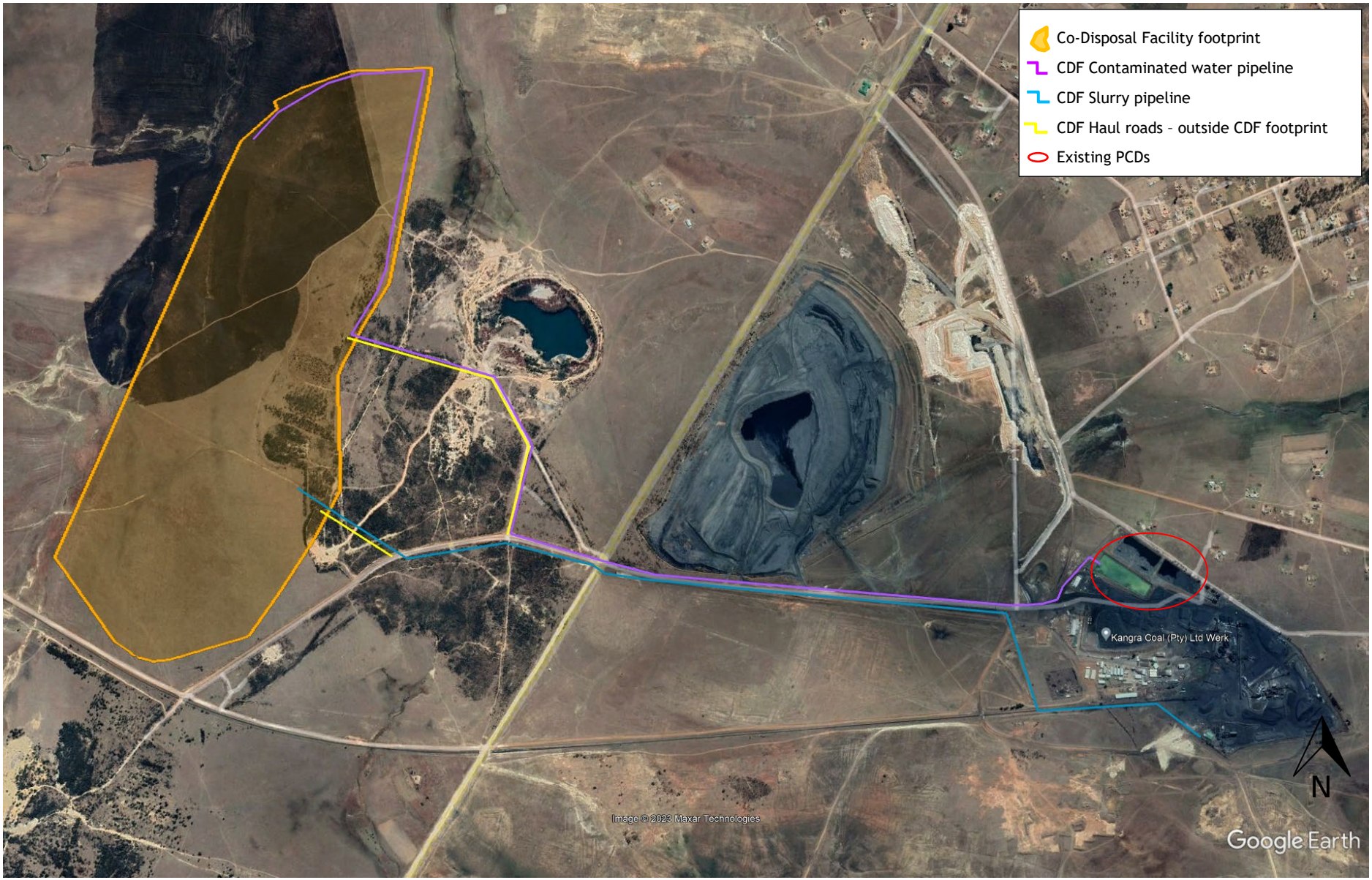


Figure 2-9: Locality of proposed Co-disposal Facility

3 LEGAL FRAMEWORK

This chapter details applicable legal provisions and aims to provide a review of relevant national and provincial legislation and regulations, and policy documents, which apply to, or have implications for, the proposed activities.

3.1 General Overview

The policy and legislative context applicable to MQE and the proposed projects is summarised in **Table 3-1** below.

Table 3-1: Legislation applicable to the proposed projects at MQE.

LEGISLATION/GUIDELINE	OBJECTIVE & RELEVANCE
LEGISLATION	
Constitution of the Republic of South Africa (Act 108 of 1996)	The Constitution is the supreme law governing all other legislation. Environmental legislation is shaped by the Bill of Rights set out in the Constitution. It sets out the rights for every citizen of South Africa and aims to address past social injustices. With respect to the environment, section 24 of the Constitution states that: *"Everyone has the right:* *a) To an environment that is not harmful to their health or well-being;* *b) To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that:* *i. Prevent pollution and ecological degradation;* *ii. Promote conservation; and* *iii. Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development".* In fulfilment of its constitutional mandate to take reasonable legislative measures that give effect to Section 24, the government has promulgated several environmental laws. These laws provide a legal framework that embodies internationally recognised legal principles. The principal act governing activities that affect the environment is NEMA. The Constitution itself has no permitting requirements. However, the way the environmental right is applied implies that environmental impacts associated with developments should be considered separately and cumulatively. Furthermore, Section 24 includes the notion that justifiable economic and social development should be promoted, through using natural resources and ecologically sustainable development. ***MQE must ensure that significant environmental impacts are avoided; and where impacts cannot altogether avoided, they must be minimised and mitigated throughout the lifecycle of the proposed projects.***
Promotion of Administrative Justice Act, 2000 (Act No. 3 of 2000)	• Administrative law is all about the pursuit of administrative justice – it is a subset of constitutional law, and an instance of the public law. • Administrative justice connotes the idea that in the implementation of legislation the public administration (making up a large part of the executive branch of government) must act within the law, fairly and reasonably, and must be able to justify their decisions, including by providing written reasons therefore on request. o The right to administrative justice is protected in section 33 of the Constitution. o The right to administrative justice is given effect by the Promotion of Administrative Justice, 2000 (Act 3 of 2000) (PAJA). • To act lawfully, as required by the right to administrative justice, officials who take administrative decisions must act within the powers given to them by the relevant legislation. For instance: o The official must consider relevant considerations and not take into account considerations that are irrelevant; o The correct official must act (the official to whom the power has been given); o The official must follow any processes required by the law; and

LEGISLATION/GUIDELINE	OBJECTIVE & RELEVANCE
	○ The official must correctly interpret the powers given to him/her. • When officials fail to act within the powers given to them by the relevant legislation (they act ultra vires) their conduct may be declared invalid and reviewed and set aside by a court on one or more of the grounds provided for in s 6 of PAJA. • To act reasonably in administrative decision-making about the environment as required by the right to administrative justice, officials must act rationally (there must be a link between a legitimate purpose of the decision and the decision itself, as well as a rational link between the information and the decision on which it was based) and reasonably, the decision should not have a disproportionate impact on environmental rights. • When officials act irrationally or unreasonably in their administrative actions, their conduct may be declared invalid, and reviewed and set aside by a court on one or more of the grounds provided for in s 6 of PAJA. ***As with the Constitution, all environmental officials must act lawfully. Should the decisions not be lawful, administrative justice i.e. their decisions be declared invalid and be set aside by the court.***
Promotion of Access to Information Act, 2000 (Act No. 2 of 2000)	• Access to information is a right, not a privilege. • S 32 of the Constitution protects the right to access to information, and applies vertically, in that it imposes a duty on the state to provide access to information to someone requesting the information, and horizontally, in that it imposes a duty on natural and juristic persons to provide access to information. • In the case of natural and juristic persons, the information must be required by the requester for the protection of the right, but this restriction does not apply where information is requested from the state. • The Promotion of Access to Information Act, 2000 (Act 2 of 2000) (PAIA) was enacted to give effect to the right, in pursuit of a culture of openness, transparency and justification in South Africa, shifting away from a culture of secrecy and authoritarianism. ***The act assists the public to request information, and all have the right to access to information.***
Environmental Conservation Act, 1989 (73 of 1989) (ECA), as amended	The ECA has now largely been replaced by the NEMA but certain provisions remain in force. The national Noise Control Regulations[1] (NCR) were promulgated in terms of Section 25 of the ECA, relating to noise, vibration and shock. The NCRs were revised[2] to make it obligatory for all authorities to apply the regulations. Under the ECA, the following SANS for assessing and controlling noise include: • 10328:2008 "Methods for environmental noise impact assessments"; and • 10103:2004 "The measurement and rating of environmental noise with respect to annoyance and speech communication". ***The proposed projects are likely to increase ambient noise levels during the construction (temporary) and operational phases. Noise impacts are closely related to construction activities and heavy traffic volumes. The SANS published under ECA will be consider for the purposes of the noise impact assessment in the EIA and the EMPr will include mitigation measures relating to the mitigation of noise impacts.***
National Environmental Management Act, 1998 (Act	NEMA is the framework law giving effect to the constitutional environmental right and for regulatory tools in respect of environmental impacts.

[1] GNR 154 in Government Gazette No. 13717 dated 10 January 1992
[2] Under GN155 of 10 January 1992

LEGISLATION/GUIDELINE	OBJECTIVE & RELEVANCE
107 of 1998) (NEMA), as amended.	Section 28(1) includes a statutory duty of care, providing that *"Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment".* In terms of sections 24(2) and 24D of NEMA, the then Minister of Environmental Affairs promulgated certain listed activities that may not commence without an EA. Activities promulgated in terms of GN983 and GN9835 require a basic assessment process, while activities promulgated in terms of GN984 require that a full scoping and EIA process be conducted[3]. Section 24C(2A) of NEMA indicates that "*where listed activities are directly related to the extraction and primary processing of a mineral resource*" the Minister of Mineral Resources and Energy is the CA or official/s at the DMRE and which power he has delegated to the relevant Regional Managers (RMs). The National Environmental Laws Amendment Act, 2022 (Act 2 of 2022) (NEMA Amendment Act) was promulgated on 24 June 2022. It will introduce a major shift in South Africa's environmental legislation on a date to be fixed and proclaimed by the President (which has yet to occur). This includes: • Residue stockpiles and residue deposits (RS) will be excluded from NEMWA and will therefore no longer be regarded as waste for which a WML is required. Instead, RS and deposits will be regulated under NEMA. • The RMs will be the CA "*where the listed or specified activity is a mining activity*". ***Please refer to Table 3-4 in Section 3.2.1 for identified listed activities applicable to the proposed projects.*** ***Note that, should the NEMA Amendment Act commence prior to construction, Kangra would no longer require a WML for the CDF and it would be governed under NEMA.***
NEMA EIA Regulations, 2014 (GNR 326, as amended)	Chapter 6 of the 2014 EIA Regulations provides for the requirements for public participation, which must be carried out as part of the EA and WML application process. In terms of Regulations 21 and 23, the outcome of the PPP must be reported in the FSR and EIR submitted to the CA. The PPP, "*must give all potential or registered parties (I&APs), including the CA, a period of at least 30 days to submit comments on each of the EMPR, S&EIRs, and where applicable the closure plan, as well as the report contemplated in regulation 32, if such reports or plans are submitted at different times*" (Regulation 40 (1)). PPP will be undertaken in accordance with chapter 6 of the EIA Regulations, 2014. It must: • provide access to all information that reasonably has or may have the potential to influence any decision regarding an application; • involve consultation with the CA, every state department that administers a law relating to the environment relevant to the application, all relevant organs of state, and all I&APs; and • provide opportunity for I&APs to comment on reports and plans prior to submission of an application and once an application has been submitted to the CA. The process must include: • notification of the application to all I&APs, as stipulated in Regulation 41; • registration of all I&APs, as required in Regulations 42 and 43; and • a CRR and records of meetings of and with I&APs, as outlined in Regulation 44.

[3] GNs 983, 984 and 985 are promulgated under NEMA in GG 38282 of 4 December 2014 (as amended).

LEGISLATION/GUIDELINE	OBJECTIVE & RELEVANCE
	Regulation 39 of the EIA Regulations, 2014 requires that: "*(1) If the proponent is not the owner or person in control of the land on which the activity is to be undertaken, the proponent must, before applying for an environmental authorisation in respect of such activity, obtain the written consent of the landowner or person in control of the land to undertake such activity on that land.* *(2) Sub regulation (1) does not apply in respect of—* *(b) activities constituting, or activities directly related to prospecting … of a mineral …resource or extraction and primary processing of a mineral…resource.*"
NEMA and MPRDA: Financial Provision (FP)	NEMA requires *inter alia* mining right holders to hold in place FP for the rehabilitation, closure and ongoing post decommissioning management of negative environmental impacts. FP assessments were previously governed by the MPRDA and the quantum calculated according to the DMRE published rates. On 20 November 2015, the NEMA Financial Provisioning Regulations, 2015[4] (2015 FP Regulations) were promulgated, resulting in significant changes from the MPRDA's requirements. Five (5) further draft updated iteration's of the 2015 NEMA FP Regulations were published by the DFEE, with the last iteration published in 2022. The 2015 FP Regulations were immediately applicable to applicants for a new mineral right but not to mineral rights holders where the right was granted before the commencement of the 2016 FP Regulations. Under the 2015 FP Regulations' transitional provisions, holders of a mineral right granted prior to the commencement of the 2015 NEMA FP Regulations (Existing Holders) were able to elect to comply either within three (3) months of their financial year-end or 15 months from promulgation of the 2015 FP Regulations. Various extensions of this transitional period have subsequently been published, with the latest extension date being 19 September 2023. ***Kangra will comply with the relevant FP Regulations when required to do so.*** ***The DMRE will require that FP be provided by Kangra before issuing it with an EA / WML.***
DFFE Web-Based Screening Tool	In terms of Regulation 16(1)(b)(v), read with Regulation 21 of the 2014 EIA Regulations, it is compulsory for an EIA application to include a sensitivity report generated by the national web based environmental screening tool[5] (DFFE Screening Tool). The content of specialist reports for certain of the themes is prescribed in the Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes[6] (Assessment Protocols); and Appendix 4 of the EIA Regulations will not be applicable to such themes. Two Assessment Protocols have been gazetted, in March and October 2020. ***Specialist studies have been undertaken to verify the sensitivity themes as identified in the DFFE Screening Tool. Specific requirements for the content of the EIA specialist reports are included in the Assessment Protocols and these specialist reports will comply with the aforesaid for purposes of the EIA.***

[4] GN 1147 of 20 November 2015: Regulations pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production Operations (GG 39425)
[5] GN R960 of GG 42561, dated 5 July 2019
[6] In terms of in terms of sections 24(5)(a) and (h) and 44 of NEMA and GN R320 of GG 43110 on 20 March 2020 and GN R1150 of GG 43855 on 30 October 2020

LEGISLATION/GUIDELINE	OBJECTIVE & RELEVANCE
National Environmental Management: Waste Act (Act 59 of 2008) (NEMWA), as amended	The NEMWA's purpose is to: assist in regulating waste management; ensure the protection of human health; and prevent pollution and environmental degradation through sound waste management principles and guidelines. The NEMWA defines waste broadly.[7] It furthermore provides for: • national norms and standards for regulating waste management by all spheres of government; • licensing and control of waste management activities; • remediation of contaminated land; • a national waste information system; and • provision for compliance and enforcement. The NEMWA imposes a general duty upon waste holders to take reasonable measures to avoid waste generation and, where this is impossible, to: minimise the toxicity and quantities of waste generated; reuse, reduce, recycle and recover waste; and ensure that it is treated and disposed of in an environmentally sound way. Failure to do so is a criminal offence, with a maximum fine of R10 million or imprisonment of up to 10 years, or both.
Regulations published under NEMWA in GN 921 of Government Gazette 37083 on 29 November 2013 (2013 WML Regulations)	It is necessary to hold a WML for defined waste management activities. The 2013 WML Regulations, provides that a WML is required for undertaking certain waste management activities ("Waste Listed Activities"). The Waste Listed Activities are separated into three (3) categories, namely Category A, B and C. Category A and B Waste Listed Activities require a WML, for which either a basic assessment or an EIA process needs to be undertaken that complies with the 2014 EIA Regulations. Category C activities do not require a WML but must comply with *inter alia* the Norms and Standards for Storage of Waste, 2013.[8] ***On commencement of the NEMA Amendment Act, RS will be excluded from NEMWA and will therefore no longer be regarded as waste for which a WML is required. Instead, RS will be under NEMA.*** ***As the NEMA Amendment Act has still not commenced, Kangra has submitted an application for a WML for the proposed RS (i.e., the CDF), which is a Category B Waste Listed Activities in the 2013 WML Regulations, which is part of the S&EIR process.***
NEMWA Regulations regarding the Planning and Management of Residue Stockpiles and Residue Deposits, published in GN	The Residue Regulations provide the tools for and correspond to the statutory provision relating to managing RS in the manner prescribed in section 43A of the NEMWA. They regulate the planning, management and reporting of RS, including**:** • The assessment of impacts and analyses of risks relating to the management of RS; • Characterisation and classification of RS;

[7] *(a) any substance, material or object, that is unwanted, rejected, abandoned, discarded or disposed of, or that is intended or required to be discarded or disposed of, by the holder of that substance, material or object, whether or not such substance, material or object can be re-used, recycled or recovered and includes all wastes as defined in Schedule 3 to this Act; or*
(b) any other substance, material or object that is not included in Schedule 3 that may be defined as a waste by the Minister by notice in the Gazette but any waste or portion of waste, referred to in paragraphs (a) and (b), ceases to be a waste—
(i) once an application for its re-use, recycling or recovery has been approved or, after such approval, once it is, or has been re-used, recycled or recovered;
(ii) where approval is not required, once a waste is, or has been re-used, recycled or recovered;
(iii) where the Minister has, in terms of section 74, exempted any waste or a portion of waste generated by a particular process from the definition of waste; or
(iv) where the Minister has, in the prescribed manner, excluded any waste stream or a portion of a waste stream from the definition of waste.

[8] Published in GN 926 of GG 37088 on 29 November 2013

LEGISLATION/GUIDELINE	OBJECTIVE & RELEVANCE
632 of GG 39020 on 24 July 2015 (Residue Regulations)	• Conducting feasibility studies for the investigation and the selection of site for RS, including geotechnical and hydrological investigations, by competent persons and a registered professional civil / mining engineer; • Design of the RS;[9] • Impact management; • Duties of the holder of the right or permit; • Monitoring and reporting systems; • Dust management and control; and • Decommissioning, closure and post closure management requirements. When the NEMA Amendment Act commences, the Residue Regulations [10] will remain operational and shall be deemed to have been made under NEMA.[11]
NEMWA Waste Classification and Management Regulations (Waste Classification Regulations) and other Regulations.	Classification of certain waste streams is required in terms of the Waste Classification and Management Regulations,[12] to ensure that the correct waste management standards and disposal methods are implemented. The National Norms and Standards for the Assessment of Waste for Landfill Disposal and the National Norms and Standards for the Disposal of Waste to Landfill[13] provide the norms and standards for disposal of waste to landfill. ***A Waste Classification was undertaken, based on the current prescribed criteria. It was concluded that the waste streams classify as a Type 3 (low risk) waste, which requires a Class C liner (pollution barrier).*** ***When the NEMA Amendment Act commences none of these Regulations will be applicable to RS.***
National Waste Information Regulations[14]	These Regulations regulate the collection of data and information to fulfil the objectives of the national waste information system, as set out in section 61 of the NEMWA, and includes reporting obligations. A registered person must keep a record of the information submitted to the SAWIS or the DFFE. ***Kangra will comply with these regulations.***
National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004) (NEM:AQA)	NEMAQA was promulgated to ensure the protection and regulation of air quality and provide measures that will prevent pollution and sustainability. Under NEMAQA, the Minister of Environmental Affairs, Forestry and Fisheries must identify substances in ambient air which present a threat to health, wellbeing or the environment and establish national standards for ambient air quality, including the permissible quantity or concentration of each substance in ambient air.

[9] Including the general layout; type of deposition method used; rate of rise; design of the pollution control barrier system; stormwater control; freeboard; pooling; required factor of safety; control of decanting of excess water; retention of polluted water; design of the penstock; outfall pipe, under-drainage system and return water dams; height of the phreatic surface; slope angles and method of construction of the outer walls and their effects on shear stability; slope erosion by wind and water, and its control by vegetation, berms or catchment paddocks; and the potential for pollution.
[10] Published in Government Notice R632 in Government Gazette 39020 on 24 July 2015.
[11] Proposed by section 86 of the NEMLA IV Bill.
[12] Published in GN634 of GG 36784 on 23 August 2013
[13] Published under GN R635 and GN R636 respectively in GG 36784 of 23 August 2013
[14] Published in GN 625 of GG 35583 on 13 August 2012

LEGISLATION/GUIDELINE	OBJECTIVE & RELEVANCE
	The "Listed Activities and Associated Minimum Emission Standards"[15], list activities that could result in atmospheric emissions requiring an atmospheric emissions licence (AEL) before being undertaken. The "National Dust Control Regulations"[16], provide that an acceptable dust fallout rate for a non-residential area is considered more than 600mg/m^2/day but less than 1200mg/m^2/day (30-day average), with maximum allowable two exceedances per year, provided these exceedances do not take place in consecutive months. Where the dust fallout rate is exceeded, a prescribed dust fallout monitoring programme must be developed and include: • the establishment of a network of dust monitoring points, using method ASTM D1739:1970 (or an equivalent standard), sufficient in number to: establish the contribution to dust fallout in residential and non-residential areas near the premises; monitor identified or likely sensitive receptor locations; and establish the baseline dust fall for the district; and • a schedule for submitting to the air quality officer dust fallout monitoring reports annually or at more frequent intervals, if requested by the air quality officer. Greenhouse gases have been declared priority pollutants under the "Declaration of Greenhouse Gases as Priority Air Pollutants"[17]. ***An AEL will not be required for the proposed projects; however, a duty of care should be employed during construction and operation to minimise air pollution as far as possible. MQE must take all reasonable measures to minimise the generation of dust and ensure compliance with the Dust Control Regulations.***
National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004) (NEM:BA)	In line with the Convention on Biological Diversity, NEMBA aims to legally provide for biodiversity conservation, sustainable use and equitable access and benefit sharing. NEMBA creates a basic legal framework for the formation of a national biodiversity strategy and action plan and identification of biodiversity hotspots and bioregions, which may then be given legal recognition. It imposes obligations on landowners (state or private) regarding alien invasive species (AIS). NEMBA requires that provision be made by a site developer to remove any aliens which have been introduced to the site or are present on the site. The NEMBA also provides for listing of threatened or protected ecosystems in one of four (4) categories: critically endangered, endangered, vulnerable or protected. Threatened ecosystems are listed to reduce the rate of ecosystem and species extinction, by preventing further degradation and loss of structure, function and composition of threatened ecosystems. The purpose of listing protected ecosystems is primarily to conserve sites of exceptionally high conservation value. Section 53 of NEM:BA provides that: *"(1) The Minister may, by notice in the Gazette, identify any process or activity in a listed ecosystem as a threatening process.* *(2) A threatening process identified in terms of subsection (1) must be regarded as a specified activity contemplated in section 24(2)(b) of the NEMA and a listed ecosystem must be regarded as an area identified for the purpose of that section."* No notices have been published yet under this section. Picking parts of, or cutting, chopping off, uprooting, damaging or destroying, any specimen of a listed threatened or protected species is a restricted activity under NEMBA. A permit is required for a restricted activity involving a listed threatened or protected (TOPS) species without a permit. Chapter 7 of the NEMBA regulates the process for application of a permit under NEMBA.

[15] Published in GN 893 of GG 37054 on 22 November 2013
[16] Published in GN 827 of GG 36974 on 1 November 2013
[17] Published in GN 710 of GG 40996 on 21 July 2017

LEGISLATION/GUIDELINE	OBJECTIVE & RELEVANCE
	The following notices have been published in terms of section 56(1) of NEMBA: • National List of Ecosystems that are Threatened and in need of protection (TOPS List),[18] which contains the National List of Ecosystems that are threatened and in need of protection. This includes preventing further degradation and loss of structure, function and composition of threatened ecosystems and preserving witness sites of exceptionally high conservation value. The purpose of listing threatened ecosystems is primarily to reduce the rate of ecosystem and species extinction. • Lists of Critically Endangered, Endangered, Vulnerable and Protected Species;[19] and • Threatened and Protected Species Regulations.[20] Chapter 5 of NEMBA pertains to AIS and provides that a person may not carry out a restricted activity involving a specimen of an AIS without a permit issued in terms of Chapter 7 of NEMBA. Such permit can only be issued after a prescribed assessment of risks and potential impacts on biodiversity is carried out. Applicable, and exempted AIS are contained within the Alien and Invasive Species List 2020.[21] The NEMBA Alien and Invasive Species Regulations[22] categorises the different types of alien and invasive plant and animal species and how they should be managed. The Revised National Biodiversity Framework 2019 – 2024 was recently published.[23] ***It is not anticipated that the proposed projects will disturb more than 10ha of indigenous vegetation, with the Project Area mainly being in already disturbed areas or low biodiversity sensitive areas, within the MQE MR surface infrastructure area.*** ***MQE must control and eradicate AIS in line with the NEMBA Alien and Invasive Species Regulations.***
Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983) (CARA)	In terms of CARA, landowners are legally responsible for the control of weeds and alien vegetation. CARA makes provision for three (3) categories of AIP: • Category 1a: must immediately be removed and destroyed; • Category 1b: need to be immediately removed and contained; • Category 2: requires a permit to retain the species on site and it must be ensured that they do not spread. All category 2 plants in riparian zones need to be removed; and • Category 3: require a permit to retain these species. All category 3 plants in the riparian zone need to be removed. CARA also regulates the conservation of soil and states that degradation of the agricultural potential is illegal. It furthermore requires the protection of land against soil erosion and the prevention of water logging and associated salinization. Permissions / permits are required under CARA for the 'cultivation' of 'virgin soil'; cultivation and/or draining vlei(s), marshes or water sponges; and cultivation of an area within a watercourse's flood area. ***MQE will comply with CARA in relation to AIP control and soil conservation.*** ***No permits under CARA are envisaged to be required for the proposed projects.***

[18] Published under GN1002 in GG34809 of 9 December 2012
[19] Published under GNR151 in GG 29567 of 23 February 2007
[20] Published under GNR152 in GG 29657 of 23 February 2007
[21] Published under GNR 1003 in GG 43726 of 18 September 2020
[22] Published under GNR1020 dated 25 September 2020
[23] In terms of GN 2423 of 26 August 2022,

LEGISLATION/GUIDELINE	OBJECTIVE & RELEVANCE
National Veld and Forest Fire Act, 1998 (Act 101 of 1998) (NVFFA)	The NVFA's purpose is to prevent and combat veld, forest and mountain fires throughout South Africa. It applies to the open countryside beyond the urban limit and puts in place a range of requirements. The NVFA sets out the responsibilities of landowners or persons in control of the land which includes: • Prepare and maintain firebreaks on their side of the boundary if there is a reasonable risk of veld fire. The NVFA sets out the procedure in this regard and the role of neighbouring landowners and the fire protection association: • Have such equipment, protective clothing and trained personnel for extinguishing fires as are prescribed (in the regulations); • If there are no regulations, reasonably required in the circumstances, take all reasonable steps to notify the FPO of the local FPA (if there is one) when a fire breaks out; and • Do everything in their power to stop the spread of the fire. Landowners must ensure that: (i) firebreaks are wide and long enough to have a reasonable chance of preventing a veldfire from spreading to or from neighbouring property, (ii) that it does not cause soil erosion; and (iii) it is reasonably free of inflammable material capable of carrying a veldfire across it. ***The projects are in the countryside beyond the urban limit, and thus the provisions of the Act are applicable. Measures to mitigate the risk of veld fires will be included in the EMPr.***
National Forests Act, 1998 (Act 84 of 1998) (NFA)	In terms of section 15(3) of the NFA, the Minister published a list of protected tree species.[24] The effect thereof is that no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree or any product derived from a protected tree, except under a licence or exemption granted by the Minister to an applicant and subject to such period and conditions as may be stipulated. ***Should MQE required any licence to disturb a protected tree, it will be duly applied for.***
National Heritage Resources Act, 1999 (Act 25 of 1999) (NHRA)	The protection and management of South Africa's heritage resources are controlled by the NHRA. The national enforcing authority for the NHRA is the South African Heritage Resources Agency (SAHRA). In terms of the NHRA, historically important features, such as graves, archaeology and fossil beds, are protected. Similarly, culturally significant symbols, spaces and landscapes are also afforded protection. In terms of section 38 of the NHRA, a permit is required for certain categories of development as follows: *"(1) (a): The construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;* *(c): Any development or other activity which will change the character of a site -* *i. exceeding 5 000 m² in extent;* *ii. involving three or more existing erven or subdivisions thereof;* *iii. involving three or more erven or divisions thereof which have been consolidated within the past 5 years; or* *iv. the costs of which will exceed a sum in terms of regulations by SAHRA or a provincial heritage resource authority."* In terms of Section 38(8) of the NHRA, section 38(1) approval from SAHRA is not required where an environmental impact assessment is undertaken under NEMA, including a HIA, and SAHRA's requirements are considered by the CA when granting the EA.

[24] GN 536 of GG 41887 on of 7 September 2018

LEGISLATION/GUIDELINE	OBJECTIVE & RELEVANCE
	Section 38(8) of the NHRA provides that: *"The provisions of this section do not apply to a development as described in subsection (1) if an evaluation of the impact of such development on heritage resources is required in terms of the ECA, or the integrated environmental management guidelines issued by the Department of Environment Affairs and Tourism, or the Minerals Act, 1991 (Act No. 50 of 1991), or any other legislation: Provided that the consenting authority must ensure that the evaluation fulfils the requirements of the relevant heritage resources authority in terms of subsection (3), and any comments and recommendations of the relevant heritage resources authority with regard to such development have been taken into account prior to the granting of the consent."* Accordingly, provision is made for the assessment of heritage impacts as part of an environmental assessment process and, if such an assessment complies with the NHRA and SAHRA's requirements and the CA considers heritage impacts when granting the EA, a separate application for consent under the NHRA is not required. ***MQE should if any heritage finds or artefacts be discovered inform the South African Police or the Heritage Authority, as per the approved EMP for the proposed project.***
Hazardous Substance Act, 1973 (Act No. 15 of 1973) (HSA)	The HSA aims to control the production, import, use, handling and disposal of hazardous substances. Under the HSA, hazardous substances are defined as substances that are toxic, corrosive, irritant, strongly sensitising, flammable and pressure generating under certain circumstances and may injure, cause ill-health or even death in humans. Where hazardous substances from any of the 4 groups below are to be used, (see below) care must be taken that they are sourced, transported, handled and disposed of in compliance with HSA. • Group I: industrial chemicals (IA) and pesticides (IB); • Group II: 9 classes of wastes excluding Class 1: explosives and class 7: radioactive substances; • Group III: electronic products and group; and • Group IV: radioactive substances. The HSA provides for the: • Control of certain electronic products; • Division of such substances or products into the groups above in relation to the degree of danger, with licensing requirements for certain activities undertaken in respect of Groups I and III; • Prohibition and control of the importation, manufacture, sale, use, operation, application, modification, disposal or dumping of such substances and products; and • Matters connected therewith. ***Hazardous substances may be stored, handled or transported as part of the proposed projects and include diesel and other liquid fuel, oil and hydraulic fluid, cement, etc. MQE will comply with the HSA, as required.***
National Water Act, 1998 (Act 36 of 1998) (NWA)	The NWA is the primary legislation controlling and managing the use of water resources and pollution thereof. It provides for fundamental reformation of legislation relating to water resource use. The NWA's preamble recognises that the ultimate aim of water resource management is to achieve sustainable use of water for the benefit of all users and that water resources quality protection is necessary to ensure sustainability of the nation's water resources in the interests of all water users. The NWA's purpose is stated in section 2 and enforced by the DWS. The NWA presents strategies to facilitate sound management of water resources; provides for the protection of water resources; and regulates use of water by means of Catchment Management Agencies (CMA), Water User Associations, Advisory Committees, and

LEGISLATION/GUIDELINE	OBJECTIVE & RELEVANCE
	International Water Management. As the NWA is founded on the principle of trusteeship, the government has overall responsibility for and authority over water resource management, including the equitable allocation and beneficial use of water in the public interest. Industry (including mines) can therefore only be entitled to use water if the use is permissible under the NWA. Section 19 of the NWA provides for pollution prevention and requires that a person who owns, controls, occupies, or uses the land in question, is responsible for taking reasonable measures to prevent pollution of water resources. A CMA may take action to prevent or remedy the pollution and recover all reasonable costs from the responsible party. Under Section 21 of the NWA, certain consumptive and non-consumptive water uses are identified and can only commence once authorised. Water use is broadly defined in the NWA and includes taking and storing water; activities which reduce stream flow; waste discharges and disposals; controlled activities; altering a watercourse; removing water found underground for certain purposes; and recreation. Consumptive water uses include taking water from a water resource (section 21(a) of NWA) and storing water (section 21(b)). Non-consumptive water uses include impeding or diverting a watercourse's flow (section 21(c)); altering a watercourse's bed, banks, course or characteristic or impeding the flow of a watercourse (sections 21 (c) and (i)); and disposal of waste in a matter that may detrimentally impact on a watercourse (section 21(g)). Where a water use constitutes a Scheduled 1 Use (permissible use without an authorisation requirement); permissible water uses in terms of section 22 of the NWA; or is authorised in terms of a General Authorisation (GA), a WUL is not required.[25] ***The proposed projects will include sections 21 (c), (i) and (g) water uses. A Water Use Licence Application (WULA) will be submitted to the DWS to authorises these water uses.***
Government Notice 704 (GN 704), published in Government Gazette 20119, dated 4 June 1999.	GN 704, promulgated under section 26(1) of the NWA is specifically aimed at the protection of water resources associated with mining related activities. It provides minimum requirements which need to be adhered to for water resource protection on a mine. GN 704 regulates the use of water; management of dirty and clean water infrastructure; and related activities at mines. This includes minimum requirements for infrastructure that hold dirty water. A mine can apply for exemptions from these requirements and could be granted approval, should sufficient management measures be put in place to ensure environmental protection. Regulation 4 of GN 704 places some restrictions in terms of the locality of certain infrastructure which could have an impact on water resources. ***MQE will comply with GN 704. Certain exemptions from GN 704 may however be necessary, including for construction of certain infrastructure in proximity to watercourses. This will be included in the WULA process.***
Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) (MPRDA), as amended	The MPRDA governs mineral resources in South Africa, regulates mining and mining authorisations and has as one of its principal objectives the equitable access and the sustainable development of the South Africa's mineral resources. Section 5A of the MPRDA indicates that: *"No person may prospect for or remove, mine, conduct technical co-operation operations, reconnaissance operations, explore for and produce any mineral or petroleum or commence with any work incidental thereto on any area without – (a) an environmental authorisation (EA)"*. Section 37 of the MPRDA requires all mining and prospecting operations and related activities to be carried out in terms of the environmental management principles set out in Section 2 of NEMA.

[25] Various GAs have been published under the NWA, including for Sections 21(c),(i),(g), and (a) water uses. In respect of sections 21(c) and (i) water uses, activities can be conducted within 100m of a watercourse and 500m of a wetland without a WUL if the impacts to the watercourse / wetland are low. Water uses that will be conducted under a GA need to be registered with the DWS.

LEGISLATION/GUIDELINE	OBJECTIVE & RELEVANCE
	Social and environmental sustainability is enhanced through the requirement to submit a Social and Labour Plan (SLP), which records a mining company's obligations to improve social development. This includes a commitment to training and social investment, with the goal of transferring skills that can be used after mine closure. ***Kangra holds the MQE MR over the Project Area.*** ***It complies with the MPRDA and will continue to do so in respect of the proposed projects. A current Social Labour Plan (SLP) has been approved by the DMRE for MQE. There will be no increases in production or extensions to the MQE MR area and Kangra would therefore not be required to update the SLP for purposes of the proposed projects.***
Mine Health and Safety Act, 1996 (Act 29 of 1996) (MHSA)	The MHSA aims to provide for protection of the health and safety (HS) of all employees and other personnel at RSA mines. Its main objectives are: • Protection of the HS of all persons at mines; • Requiring employers and employees to identify hazards and eliminate, control and minimise the risks relating to health and safety at mines; • Giving effect to the public international law obligations of South Africa that concern HS at all mines. • To promote: o a culture of HS in the mining industry; o training in HS in the mining industry; and o cooperation and consultation on HS between the State, employers, employees and their representatives. • Providing for: o employee participation in matters of HS through HS representatives and the HS committees at mines; o effective monitoring of HS conditions at mines; o enforcement of HS measures at mines; and o investigations and inquiries to improve HS at mines. ***MQE already complies with the MHSA and will continue to do so in respect of the proposed projects.*** ***It will conduct the required hazard assessment under the MHSA regarding potential HS impacts prior to commencing with construction of the proposed projects.***
MHSA: DMRE's Guideline for the Compilation of Mandatory Code of Practice ("COP") on Mine Residue Deposits, published in accordance with the MHSA ("RS COP Guideline")	The RS COP Guideline is published pursuant to the MHSA and contains requirements as to what a mine needs to include in its COP for RS. This includes that an employer must identify hazards; assess the HS risks to which employees, and as far as reasonably practicable to persons who are not employees, may be exposed while they are at work; and record the significant hazards identified and risks assessed ("Risk Assessment"), prior to commencing operations. The Risk Assessment must: be based on a site selection process (including input from I&APs); and a site-specific investigation (including that the site is geologically and geomorphologically stable); detail pre-existing natural contaminant levels and incremental levels arising from the RS; consider all MRDs on a site in an integrated system; consider the lifestyles /living conditions of persons potentially affected; and assess future events which can give rise to increased risks. The RS COP Guideline set outs the technical information required during the site investigation process and various technical reports that must be compiled as a basis the RS design, which mirror the RS Regulations in various respects. This includes a detailed investigation by

LEGISLATION/GUIDELINE	OBJECTIVE & RELEVANCE
	a competent person of the RS's characteristics that may directly or indirectly affect the HS of mining and non-mining personnel in the vicinity of the site, and design requirements. It also requires a safety classification of the RS in accordance South African National Standards (SANS): Code of Practice, Mine Residue, SABS 10286: 1998 ("SABS 10286"), being the principal management guidance document for RS. SANS 10286 contains fundamental objectives, the principles, and minimum requirements for best practice, all aimed at ensuring that no unavoidable risks, problems and/or legacies are left to future generations. It does not, however, address the Safety, Health and Environmental (SHE) concerns of tailings storage, but places more focus on the need for management throughout the project's lifecycle . SANS 10286 also requires RS to be classified as either High, Medium or Low Hazard based on generic "catch-all" guidelines for determining a Zone of Influence, which is used. ***Kangra will compile a Risk Assessment on HS risks prior to commencing with operation of the proposed projects, for submission to the DMRE Mine Health Inspectorate.*** ***The risks, potential impacts and mitigation measures regarding HS that are identified in the detailed design and EIA will be included in the baseline process for the Risk Assessment.***
Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) (OHSA)	The MHSA provides that OHSA is not applicable to any matter in respect of which any provision of the MHSA is applicable.
Compensation for Occupational Injuries and Diseases Act, 1993 (Act No. 130 of 1993) (COIDA)	Under COIDA, employers are not held liable for compensation for injuries sustained by employees or compensation to dependants due to the death of an employee which occurred during the course and scope of their employment. Compensation is paid out of a statutory fund, administered by the Compensation Commissioner ("CC") (appointed under COIDA), which is set in accordance with a tariff prescribed in COIDA. The fund is a trust fund that is controlled by the CC, which the employer contributes to. The CC is appointed to administer the fund and approve claims lodged by employees or their dependants. The CC compensates the employee or their dependants directly. ***MQE will take cognisance of the requirements of the COIDA as part of daily operations should incidents occur.***
Restitution of Land Rights Act, 1994 (Act 22 of 1994) (RLRA)	The RLRA governs land restoration claims. Initially, the RLRA only allowed land claims to be lodged until December 1998 (Initial Period). This Initial Period was amended with the promulgation of the Restitution of Land Rights Amendment Act of 2014 and the process for the lodgement of claims was extended to 2019. However, a few months thereafter, the Constitutional Court delivered a judgment, *Land Access Movement of South Africa and Others v Chairperson of the National Council of Provinces and Others* 2016 (5) SA 635 (CC) (LAMOSA).[26] In terms of the LAMOSA judgments, the Department of Rural Development and Land Reform (DRDLR) is interdicted from processing those claims lodged after December 1998 until those lodged prior to December 1998 have been finalised. Under section 11(7), no person may sell, exchange, donate, lease, subdivide, rezone, or develop a land in respect of which a land claim has been published in a government gazette without giving the Regional Land Claims Commissioner (LCC) one month's written notice of the intention to do so. ***MQE shall duly notify the LCC prior to developing on the Project Area.***
Other National Legislation and Policy	Other policies, legislation and associated regulations (where applicable) considered as part of the application process include:

[26] which was followed by *Speaker of the National Assembly and Another v Land Access Movement of South Africa and Others (2019) ZACC 10.*

LEGISLATION/GUIDELINE	OBJECTIVE & RELEVANCE
	• Disaster Management Act, 2002 (Act No. 57 of 2002). • Integrated Resource Plan 2019. • Local Government: Municipal Systems Act, 2000 (Act 32 of 2000). • National Development Plan 2030. • Protection of Personal Information Act, 2013 (Act 4 of 2013). • Regulations of Gatherings Act, No. 205 of 1993 • Traditional and Khoi-San Leadership Act, 2019 (Act 3 of 2019). • Water Services Act, 1997 (Act 108 of 1997). • Promotion of Access to Information Act, 2000 (Act 2 of 2000) • Promotion of Access to Justice Act, 2000 (Act 3 of 2000). • Basic Conditions of Employment Act, 1997 (Act 75 of 1997) • Labour Relations Act, 1995 (Act 66 of 1995).
Provincial / Municipal Legislation and Policy	Provincial / Municipal policies, legislation, and associated regulations (where applicable) considered as part of the application process include: • Mpumalanga Nature Conservation Act, 1998 (Act 10 of 1998). • Spatial Development Framework (SDF) 2019: Mpumalanga Province, as amended. • Gert Sibande District Municipality (GSDM) Spatial Development Framework 2009. • GSDM Noise Control By-Law, 2014. • GSDM Waste By-Laws, 2017. • Mkhondo Spatial Planning & Land Use Management By-Law, 2016.
Municipal Development Planning	The following municipal development planning documentation is relevant to the application process: • Gert Sibande District Municipality Integrated Development Plan (IDP) 2022/27 and supporting documents. • Mkhondo IDP 2022/2027
OTHER STANDARDS AND GUIDELINES	
Standards and Guidelines	In addition to the abovementioned Acts and their associated Regulations, the following guidelines and reports have been taken cognisance of during the application process: • Guidelines for consultation with communities and interested and affected parties issued by the DMRE. • NEMA Implementation Guidelines: Sector Guidelines for EIA Regulation[27] • Department of Environmental Affairs (DEA) (2011): A user friendly guide to the National Environmental Management: Waste Act, 2008. South Africa, Pretoria.

[27] Published under GN 654 in GG 3333 of 29 June 2010

LEGISLATION/GUIDELINE	OBJECTIVE & RELEVANCE

	• Department of Environmental Affairs and Tourism (2004): Criteria for determining Alternatives in EIA, Integrated Environmental Management, Information Series 11.
	• DFFE Integrated Environmental Management Guideline on Need and Desirability, 2017.
	• Guideline for Implementation: Public Participation in the EIA Process.[28]
	• Publication of Public Participation Guideline (GN 807 of 10 October 2012 GG No. 35769).
	• Mining and Biodiversity Guideline: mainstreaming biodiversity into the mining sector.
	• Department of Water and Forestry ("DWAF"), 2006. Groundwater Assessment II.
	• DWS, 2011 The Groundwater Dictionary – A comprehensive reference of groundwater related terminology, 2nd ed.
	• DWS, 2016 New Water management Areas, South Africa: Government Gazette No 40279.
	• South African Water Quality Guidelines (DWAF):
	  o South African Water Quality Guidelines (2nd Edition). Volume 4: Agricultural Use: Irrigation (1996a);
	  o Water Quality Guidelines - Volume 1: Domestic Use (1996b);
	  o South African Water Quality Guidelines (2nd Edition). Volume 5: Livestock Watering (1996c);
	  o Water Quality Guidelines Volume 7: Aquatic Ecosystems (1996d);
	  o Water Quality Guidelines Volume 2: Recreational Use (1996e); and
	  o Water Quality Guidelines Volume 3: Industrial Use (1996f).
	• Best Practice Guidelines (DWAF):
	  o G3: Water Monitoring Systems (2007);
	  o A5: Water Management for Surface Mines (2008b); and
	  o G4: Impact Prediction (2008)
	• SANS 10103 of 2008: The measurement and rating of environmental noise with respect to annoyance and to speech communication[29]
	• SANS 10210 of 2004: Calculating and predicting road traffic noise.
	• SANS 10357: 2004: The calculation of sound propagation by the Concave method.

[28] Published in under GN 807 in GG 35769 of 10 October 2012

[29] Published under GN 718 in Government Gazette No. 18022

3.2 NEMA EIA Regulations 2014 (as amended)

The NEMA is South Africa's overarching framework for environmental legislation. Regulations promulgated under NEMA include the EIA Regulations (2014) published under Government Notice Regulation (GNR) 982, as amended (EIA Regulations), and the associated Listing Notices Listing Notice 1, 2 and 3. Section 24(5) of NEMA stipulates that certain "listed activities" require environmental authorisation by way of either a Basic Assessment (BA) or a full Scoping and Environmental Impact Assessment (S&EIR), as defined in the Listing Notices. Activities listed under Listing Notice 1 and 3 require a BA process to be undertaken, while those listed under Listing Notice 2 require a full Scoping and S&EIR process. Table 3-4 and Table 3-5 provides an assessment of the applicable listed activities in terms of NEMA and NEMWA respectively.

3.2.1 Screening and Initial Site Sensitivity Verification

Regulations published under NEMA in GN 960 of Government Gazette 42561 of 5 July 2019 prescribe that in an environmental authorisation (EA), a sensitivity report is to be generated through the Department of Forestry, Fisheries and the Environment's (DFFE) national web based environmental screening tool (DFFE Screening Tool). The DFFE Screening Tool ranks the sensitivities of a series of themes and identifies required procedures for the "Assessment and Minimum Criteria for Reporting on Identified Environmental Themes" in terms of Sections 24(5)(a) and (h) and 44 of NEMA (Assessment Procedures), which contains certain procedures and prescribed report content. The DFFE Screening Tool generated by the EAP confirmed that the agricultural, palaeontology, animal/plant species and aquatic and terrestrial biodiversity were flagged as medium to high.

For themes included in the Assessment Procedures, an Initial Site Sensitivity Verification must be undertaken by an EAP or a registered specialist with expertise in the relevant environmental theme being considered. The Initial Site Sensitivity Verification must be undertaken using:

- A desktop analysis, using satellite imagery; and
- A preliminary on-site inspection to identify if there are any discrepancies with the current land use and environmental status quo versus the environmental sensitivity. as identified on the national web-based environmental screening tool, such as new developments, infrastructure, indigenous/pristine vegetation, etc.

The outcome of the Initial Site Sensitivity Verification must be recorded in the form of a report that-

- Confirms or disputes the current use of the land and environmental sensitivity as identified by the DFFE Screening Tool;

- Contains motivation and evidence (e.g., photographs) of either the verified or different use of the land and environmental sensitivity; and
- Is submitted together with the relevant assessment report prepared following the requirements of the EIA Regulations.

The EAP generated a DFFE Screening Tool (01 November 2022) (Appendix A) for the MQE proposed projects. It noted several sensitivities and associated reporting requirements, as shown in Table 3-2.

Table 3-2: Site Sensitivities (based on the property description) from DFFE Screening Tool.

THEME	VERY HIGH	HIGH	MEDIUM	LOW
Agriculture	X			
Animal Species		X		
Aquatic Biodiversity	X			
Archaeological and Cultural Heritage				X
Civil Aviation				X
Defence				X
Palaeontology	X			
Plant Species			X	
Terrestrial Biodiversity	X			

Based on the above, and in accordance with the project team's initial investigations, the specialist investigations identified to be undertaken for the proposed MQE projects are provided in Table 3-3 below. The recommendations and mitigation measures will also be based on the findings and recommendations of the specialists used for the Feasibility Studies, including engineering, seismic, and the dam break analysis.

Table 3-3: Specialist Investigations

MQE Projects Specialist Investigations to be undertaken in the EIA Phase:
Terrestrial Biodiversity Sensitivity Verification Investigation
Aquatic & Wetland Impact Assessment
Heritage & Paleontological Sensitivity Verification Investigation
Geohydrological Impact Assessment
Hydrological Impact Assessment
Hydropedological Impact Assessment

Please refer to Section 8.6 for the Specialist Investigation Terms of Reference.

All the themes which flagged as medium – high, are themes included in the Assessment Procedures, as such, the abovementioned investigations/reviews will need to include the minimum content criteria prescribed in these Procedures.

3.2.2 Applicable Listed Activities

The proposed MQE projects will require an IEA through a S&EIR process, due to the following listed activities being triggered:

Table 3-4: Listed activities in terms of the 2014 NEMA EIA regulations, as amended.

Notice	Activity	Description of related activity	Applicability
1	9	The development of infrastructure exceeding 1 000m in length for the bulk transportation of water or storm water— (i) with an internal diameter of 0,36m or more; or (ii) with a peak throughput of 120l/s or more; excluding where— (a) such infrastructure is for bulk transportation of water or storm water or storm water drainage inside a road reserve or railway line reserve; or (b) where such development will occur within an urban area.	The construction and operation of pipelines with a Ø of more than 0.36m and throughput of more than 120l/s, for water/stormwater reticulation for the co-disposal facility. ***This activity is therefore applicable.***
1	10	The development and related operation of infrastructure exceeding 1 000m in length for the bulk transportation of sewage, effluent, process water, wastewater, return water, industrial discharge or slimes – (i) with an internal diameter of 0,36m or more; or (ii) with a peak throughput of 120l/s or more; excluding where— (a) such infrastructure is for the bulk transportation of sewage, effluent, process water, waste water, 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.	The construction and operation of pipelines with a Ø of more than 0.36m and throughput of more than 120l/s, for process/waste/return water or effluent reticulation for the co-disposal facility, the decant management system and the wastewater treatment plant. ***This activity is therefore applicable.***
1	12	The development of (i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100m^2; or (ii) infrastructure or structures with a physical footprint of 100m^2 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 32m of a watercourse, measured from the edge of a watercourse; excluding— (aa) the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour; (bb) where such development activities are related to the development of a port or harbour, in	The proposed projects are proposed within or in proximity to various watercourses; and their development footprints exceed 100m^2. However, an exclusion is relevant, as Activity 14 of LN 3 is applicable. ***This activity is therefore not applicable and will not be further addressed in this assessment.***

Notice	Activity	Description of related activity	Applicability
		which case activity 26 in LN 2 of 2014 applies; (cc) activities listed in activity 14 in LN 2 of 2014 or activity 14 in LN 3 of 2014, in which case that activity applies; (dd) where such development occurs within an urban area; (ee) where such development occurs within existing roads, road reserves or railway line reserves; or (ff) the development of temporary infrastructure or structures where such infrastructure or structures will be removed within 6 weeks of the commencement of the development and where indigenous vegetation will not be cleared.	
1	19	The infilling or depositing of any material of more than 10m^3 into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10m^3 from a watercourse, but excluding where such infilling, depositing, dredging, excavation, removal or moving— (a) will occur behind a development setback; (b) is for maintenance purposes undertaken in accordance with a maintenance management plan; (c) falls within the ambit of activity 21 in this Notice, in which case that activity applies; (d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or (e) where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies	The proposed projects are proposed within or in proximity to various watercourses; and their construction will result in the disturbance of more than 10m^3 of material within affected watercourses. ***This activity is therefore applicable.***
1	24	The development of a road- (i) for which an environmental authorisation was obtained for the route determination in terms of activity 5 in GNR 387 of 2006 or activity 18 in GNR 545 of 2010; or (ii) with a reserve wider than 13.5m, or where no reserve exists where the road is wider than 8m; but excluding a road- (a) which is identified and included in activity 27 in LN 2 of 2014; (b) where the entire road falls within an urban area; or (c) which is 1 kilometre or shorter.	Various new 16m wide haul roads is required for the proposed new CDF, and the total length of these roads will exceed 1km in length. ***This activity is therefore applicable.***
1	25	The development and related operation of facilities or infrastructure for the treatment of effluent, wastewater or sewage with a daily throughput capacity of more than 2 000m^3 but less than 15 000m^3.	The construction of a wastewater treatment plant to treat contaminated water, with a maximum throughput capacity of 4 500m^3/day. ***This activity is therefore applicable.***
1	27	The clearance of an area of 1ha or more, but less than 20ha of indigenous vegetation, except where such clearance of indigenous vegetation is required for—	The total combined project footprint area is approximately 70ha in extent. Indigenous

Notice	Activity	Description of related activity	Applicability
		(i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	vegetation removal is likely to exceed 20ha; as such . exclusion is relevant, as Activity 15 of LN 2 is applicable. ***This activity is therefore not applicable and will be addressed as part of Activity 15 of LN 2.***
2	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, excluding— (i) activities which are identified and included in LN 1 of 2014; (ii) activities which are included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies; (iii) the development of facilities or infrastructure for the treatment of effluent, polluted water, wastewater or sewage where such facilities have a daily throughput capacity of 2 000m^3 or less; or (iv) where the development is directly related to aquaculture facilities or infrastructure where the wastewater discharge capacity will not exceed 50m^3/day.	The proposed new PCDs associated with the CDF and WWTP, as well as associated infrastructure will require authorisation in terms of Section 21 (a), (c), (i) and (g) of the National Water Act (Act 36 of 1989). ***This activity is therefore applicable.***
2	15	The clearance of an area of 20ha or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for— (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	The total combined project footprint area is approximately 70ha in extent. As such, indigenous vegetation removal for the combined project area may exceed 20ha. ***This activity is therefore applicable.***
3	4	The development of a road wider than 4m with a reserve less than 13,5m. f. Mpumalanga i. Outside urban areas: (aa) A protected area identified in terms of NEMPAA, excluding disturbed areas; (bb) National Protected Area Expansion Strategy (NPAES) Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (dd) Sites or areas identified in terms of an international convention; (ee) Critical biodiversity areas (CBA) as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ff) Core areas in biosphere reserves; or	MQE falls within a CBA, a NPAES Focus area and NFEPA Sub-catchment area. Establishment of new access and internal roads for the proposed projects would trigger this activity, however, as far as possible existing roads would be utilised. ***This activity is therefore applicable.***

Notice	Activity	Description of related activity	Applicability
		(gg) Areas within 10km from national parks or world heritage sites or 5km from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve, excluding disturbed areas, where such areas comprise indigenous vegetation; or ii. Inside urban areas: (aa) Areas zoned for use as public open space; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose.	
3	12	The clearance of an area of 300m^2 or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. f. Mpumalanga i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004; ii. Within CBAs identified in bioregional plans; or iii. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning or proclamation in terms of NEMPAA.	MQE falls within a CBA and indigenous vegetation removal is highly likely to exceed 300m^2. ***This activity is therefore applicable.***
3	14	The development of— (i) dams or weirs, where the dam or weir, including infrastructure and water surface area exceeds 10m^2; or (ii) infrastructure or structures with a physical footprint of 10m^2 or more; where such development occurs— (a) within a watercourse; (b) in front of a development setback; or (c) if no development setback has been adopted, within 32m of a watercourse, measured from the edge of a watercourse; excluding the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour. f. Mpumalanga i. Outside urban areas: (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) NPAES Focus areas; (cc) World Heritage Sites; (dd) Sensitive areas as identified in an environmental management framework as contemplated in	MQE is located in a CBA and NPAES Focus area. The proposed projects are located within or in close proximity to various watercourses. The projects' zone of influence will affect these watercourses as the extent of the development footprints is in excess of 10m^2. ***This activity is therefore applicable.***

Notice	Activity	Description of related activity	Applicability
		chapter 5 of the Act and as adopted by the competent authority; (ee) Sites or areas identified in terms of an international convention; (ff) CBAs or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (gg) Core areas in biosphere reserves; or (hh) Areas within 10km from national parks or world heritage sites or 5km from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve, where such areas comprise indigenous vegetation; or ii. Inside urban areas: (aa) Areas zoned for use as public open space; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority, zoned for a conservation purpose	
3	18	The widening of a road by more than 4m, or the lengthening of a road by more than 1km. f. Mpumalanga i. Outside urban areas: (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) NPAES Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (dd) Sites or areas identified in terms of an international convention; (ee) CBAs as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ff) Core areas in biosphere reserves; or (gg) Areas within 10km from national parks or world heritage sites or 5km from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve, where such areas comprise indigenous vegetation; or ii. Inside urban areas: (aa) Areas zoned for use as public open space; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose.	MQE falls within a CBA, and a NPAES Focus area. Expansion of access and internal roads for the proposed projects, will trigger this activity. ***This activity is therefore applicable.***

Table 3-5: Listed activities in terms of the 2013 NEMWA Waste Listed Activities, as amended.

Category	Activity	Description of related activity	Applicability
B	7	The disposal of any quantity of hazardous waste to land.	The proposed CDF will accommodate discard produced from the beneficiation plant, slurry/filter cake and potentially brine from the WWTP. The waste streams has been classified as Type 3 and Class I & II, requiring a Class C barrier system for disposal. ***This activity is therefore applicable.***
B	10	The construction of a facility for a waste management activity listed in Category B of this Schedule (not in isolation to associated waste management activity).	The construction of the CDF triggers this activity. ***This activity is therefore applicable.***
B	11	The establishment or reclamation of a residue stockpile or residue deposit resulting from activities which require a mining right, exploration right or production right in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002).	The proposed CDF will accommodate discard produced from the MQE beneficiation plant, slurry/filter cake and potentially brine from the WWTP. If NEMLAA V commences prior to the proposed development commencing, this activity will however no longer be required, as a WML will no longer be required for residue stockpiles. ***This activity is therefore currently applicable.***

The proposed MQE projects and their individual listed activities triggered will be explained in further detail during the impact assessment phase of this S&EIR process.

3.2.3 The S&EIR Process

A S&EIR process has two distinct phases: The Scoping Phase and the Environmental Impact Reporting Phase. The Scoping Report identifies potential biophysical, social and health aspects and impacts of the proposed development on the receiving environment and invites comments from stakeholders in the identification of key issues and areas of concern, in order to inform the S&EIR process. The main objectives of the Scoping Phase are as follows:

- 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 and layout;
- 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 identification of impacts and risks inclusive of identification 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 EIA phase;
- Agree on the level of assessment to be undertaken; 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.

4 PROJECT MOTIVATION NEED AND DESIRABILITY

Kangra Coal (Pty) Ltd is an independent, coal operating mining company in South Africa.

Kangra is located about 45km from Piet Retief in Mpumalanga and produces about 2 million tons of run of mine energy coal per annum. Kangra's wash abilities allow it to produce a range of thermal coal products for both international and domestic customers. The vast majority of Kangra's coal is exported through Richards Bay Coal Terminal for use by international power producers.

Kangra's consistent quality and secure production make it highly a sought-after supplier to key markets. Kangra's location, being close to Richards Bay, positions it well for both exports and to service the local South African markets.

Kangra was founded by Graham Beck in 1957 and became a founding member of Richards Bay Coal Terminal in 1974. Kangra acquired the mining rights for Savmore/Maquasa in 1995. Kangra continues to mine at Maquasa today.

Kangra is a shareholder of Richards Bay Coal Terminal, the world's largest coal export terminal which allows it to export about 1.6 million tons of coal per annum.

Kangra's Maquasa Operation is a dynamic undertaking, and as the mining progresses, the need for supporting infrastructure changes constantly.

As indicated in earlier investigations in support of the initial application for a new discard facility, Kangra is expanding their operations in the area, resulting in increased discard capacity requirements which is anticipated to reach its capacity by 2025.

Furthermore, in line with Kangra's commitment to minimising environmental degradation through the implementation of their various environmental policies and programmes and compliance focused corporate responsibility to minimise their negative impact on the environment and promote sustainable development, MQE seeks to improve their contaminated water management practices on-site. In this regard, it is proposed to construct and operate a WWTP, including associated infrastructure to improve MQE's decant, and excess process water management practices as explained in section 2 of this report as well as constructing a water pipe to discharge into the Heyshope Dam.

Important to note, is that the proposed projects do not entail any expansion of current mining activities or production levels nor change to the mine area held under the MQE MR. The purpose of these projects is to provide supplementary infrastructure required for the enhancement of current mining activities.

The proposed projects are crucial for the continued operation of the Maquasa Operations. Should they not be approved, MQE's contaminated water management practices will not be improved, and the additional disposal capacity will not be achieved, resulting in the

shortening of the expected Life of Mine (LoM) potentially reducing the positive socio-economic impacts provided by the current operations.

In accordance with the EIA Regulations, 2014(as amended), the need and desirability of the proposed projects has been considered while taking the strategic concept, broader socio-economic needs, public interest, and environmental impacts into account. The tables below (Table 4-1 and Table 4-2) provide answers to a number of guiding questions as posed in the Department of Environmental Affairs' Guideline on Need and Desirability (DEA, 2017).

The answers provided below indicate that ample consideration has been given to the need and desirability of the proposed projects.

Table 4-1: Assessment of the proposed MQE projects in terms of securing ecological sustainable development and use of natural resources.

HOW WILL THIS DEVELOPMENT (AND ITS SEPARATE ELEMENTS/ASPECTS) IMPACT ON THE ECOLOGICAL INTEGRITY OF THE AREA?		
No.	**Question**	**Answer**
1.1	How were the following considerations taken into account: • Threatened ecosystems; • Sensitive, vulnerable, highly dynamic or stressed ecosystems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure; • CBAs and ESAs; • Conservation targets; • Ecological drivers of the ecosystem; • Environmental Management Framework; • Spatial Development Framework; and • Global and international responsibilities relating to the environment.	Considering that MQE is located in an environmentally sensitive CBA, the EIA process would address all ecological and environmental considerations, with specific reference to the conservation importance of the area. Due diligence would be observed while undertaking the EIA to ensure that the process was in line with MQE's environmental principles, the area's environmental frameworks and all relevant guidelines.
1.2	How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity? What measures were explored to firstly avoid these negative impacts, and where these negative impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	The projects will take place in an area largely characterised by mining activities. Some wetland habitats would be lost. In order to reduce the impact of the projects on the ecosystem, clean stormwater would be diverted around the Project Areas. Several options were explored for the projects, with the proposed option being the best strategy. Implementation of the EMPr would ensure that negative impacts are avoided, managed, and mitigated as far as possible.
1.3	How will this development pollute and/or degrade the biophysical environment? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	The CDF would be lined, as per the current requirements of DWS. Seepage from the CDF is thus expected to be minimal. The projects are proposed within the MR area in previously disturbed areas, where very little indigenous vegetation remains. Implementation of the EMPr would ensure that negative impacts are avoided, managed, and mitigated as far as possible.

1.4	What waste will be generated by this development? What measures were explored to firstly avoid waste, and where waste could not be avoided altogether, what measures were explored to minimise, reuse and/or recycle the waste? What measures have been explored to safely treat and/or dispose of unavoidable waste?	The CDF would be a residue/discard storage facility. The waste that will be stored is a product of the processing of minerals, hence there are no further treatments that could be applied. The WWTP would generate brine, to be disposed either in the CDF or a dedicated Brine PCD. The function of the WWTP is to treat contaminated water on the site. Other waste products generated would enter the existing MQE waste management stream and be finally disposed of at licensed waste disposal facilities.
1.5	How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	The project falls within an existing MR and active mining area. a Heritage and Paleontological Sensitivity Verification will be undertaken during the EIA Phase. Implementation of the EMPr would ensure that negative impacts are avoided, managed, and mitigated as far as possible.
1.6	How will this development use and/or impact on non-renewable natural resources? What measures were explored to ensure responsible and equitable use of the resources? How have the consequences of the depletion of the non-renewable natural resources been considered? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	There is no foreseen additional demand on natural resources due to the proposed projects that would result in any significant depletion of natural resources. In respect of water supply, MQE would continue to recycle water at the mine in a closed system. The CDF and Brine PCD would be lined with an impermeable barrier system, and this would prevent any significant impact to the groundwater, with no impact on groundwater users being anticipated. There would be limited removal of indigenous vegetation. Appropriate mitigation measures would be included in the EMPr to minimise impacts to non-renewable natural resources. The extent of biodiversity impacts would be assessed and the necessity to offset this.
1.7	How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part? Will the use of the resources and/or impact on the ecosystem jeopardise the integrity of the resource and/or system taking into account carrying capacity restrictions, limits of acceptable change, and thresholds? What measures were explored to firstly avoid the use of resources, or if avoidance is not possible, to minimise the use of resources? What measures were taken to ensure responsible and equitable use of the resources? What measures were explored to enhance positive impacts? • Does the proposed development exacerbate the increased dependency on increased use of resources to maintain economic growth or does it reduce resource dependency (i.e. de-materialised growth)? (note: sustainability requires that	

	settlements reduce their ecological footprint by using less material and energy demands and reduce the amount of waste they generate, without compromising their quest to improve their quality of life); • Does the proposed use of natural resources constitute the best use thereof? Is the use justifiable when considering intra- and intergenerational equity, and are there more important priorities for which the resources should be used (i.e. what are the opportunity costs of using these resources this the proposed development alternative?); • Do the proposed location, type and scale of development promote a reduced dependency on resources?	
1.8	How were a risk-averse and cautious approach applied in terms of ecological impacts? • What are the limits of current knowledge? • What is the level of risk associated with the limits of current knowledge? • Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?	The impacts on ecology would be thoroughly investigated in the identified investigations. At this stage, it is unlikely that these gaps would result in a large increase in the risk. The precautionary principle was adopted during the preliminary design process whilst investigating the engineering solutions and seismicity in the area. Alternatives would be explored for the projects during the EIA process and would similarly be applied by the specialists in the EIA phase.
1.9	How will the ecological impacts resulting from this development impact on people's environmental right in terms following: • Negative impacts: e.g. access to resources, opportunity costs, loss of amenity, air and water quality impacts, nuisance (noise, odour, etc.), health impacts, visual impacts, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts? • Positive impacts: e.g. improved access to resources, improved amenity, improved air or water quality, etc. What measures were taken to enhance positive impacts?	A comprehensive suite of specialist studies to investigate the impacts of the proposed projects on the environmental rights of the community are being compiled. The proposed projects are likely to have minimal additional impacts in terms of amenity (as it is within the MQE MR Area and owned by Kangra), air and water quality, noise, health and visual. The implementation of the EMPr would assist in minimising or managing any impacts as far as possible.
1.10	Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socio-economic impacts (e.g. on livelihoods, loss of heritage site, opportunity costs, etc.)?	Human wellbeing in the area is linked to livelihood, air quality and water quality. Should the development negatively impact any of these factors, this may result in linked socio-economic impacts. The impacts would be assessed, and further investigations would be undertaken as necessary in this regard.

1.11	Based on all of the above, how will this development positively or negatively impact on ecological integrity objectives/targets/considerations of the area?	It is likely that there would be little additional impacts on ecological integrity as the proposed projects would be located within the existing MQE MR Area, with existing mining activities and within an area where the MQE surface infrastructure is already situated.
1.12	Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the "best practicable environmental option" in terms of ecological considerations?	In considering project alternatives, it must be highlighted that the proposed projects are all located within an area classified as a "Brownfields Site" and there are various limiting factors pertaining to availability of suitable land and restrictions experienced due to biodiversity sensitivity in the area. Nevertheless, detailed scrutiny was undertaken of potential development options. Due to the nature and location of the current activities at MQE, the proposed projects are proposed to be positioned in the locations and on the properties on which they are needed and best located in accordance with current operational requirements and identified restrictions explained earlier.
1.13	Describe the positive and negative cumulative ecological/biophysical impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and existing and other planned developments in the area?	Positive: • The proposed projects are all located within a "Brownfields Site" and as such the potential environmental impact has been lowered. Negative: • Loss of topsoil and vegetation (habitat). • Potential pollution of soil and water resource through improper waste and hydrocarbon management. • Minor air quality impacts from dust and particulate matter. • Minor noise impacts. • Potential erosion and sedimentation of water resource, impacting water quality. • Potential groundwater pollution through seepage (this is unlikely due to the pollution barrier system (the liner) and other mitigation measures which would be put in place). • Permanent visibility of the projects in landscape, changing the topography. • Possible impact on the water quality

Table 4-2: Assessment of the proposed MQE projects in terms of promoting justifiable economic and social development.

No.	Question	Answer
2.1	What is the socio-economic context of the area, based on, amongst other considerations, the following considerations: • The IDP (and its sector plans' vision, objectives, strategies, indicators and targets) and any other strategic plans, frameworks of policies applicable to the area, • Spatial priorities and desired spatial patterns (e.g. need for integrated of segregated communities, need to upgrade informal settlements, need for densification, etc.), • Spatial characteristics (e.g. existing land uses, planned land uses, cultural landscapes, etc.), and • Municipal Economic Development Strategy ("LED Strategy").	The area is characterised by high unemployment rates, with employment being driven largely by mining activities. The development is an expansion of activities which are already underway, in a landscape dominated by mining. The IDP speaks of how mining has contributed 17-26% of the Mpumalanga Province's budget in recent years and identifies various opportunities in the mining sector. Thus, the development is in line with the IDP and other spatial priorities. The expansion of the facility would result in continued employment as the lifespan of the operations would be increased.
2.2	Considering the socio-economic context, what will the socio-economic impacts be of the development (and its separate elements/aspects), and specifically also on the socio-economic objectives of the area? • Will the development complement the local socio-economic initiatives (such as local economic development (LED) initiatives), or skills development programs?	The proposed projects would result in continued employment; and continued direct, downstream, and macro-economic positive impacts from the MQE Mine, as its LOM would be maintained and benefits to the local Communities arising from the MQE Social and Labour Plan (SLP) would continue. This is in line with the objectives of the GSDM and Local IDPs.
2.3	How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities?	The expansion projects would likely result in continued employment, as well as continued economic input from the operations, as the lifespan of the Mine would be increased and continued benefits to the local Communities arising from the MQE SLP. This is in line with the objectives of the IDP.
2.4	Will the development result in equitable (intra- and inter-generational) impact distribution, in the short- and long-term? Will the impact be socially and economically sustainable in the short- and long-term?	The proposed projects would result in long-term benefits through maintaining the LOM; providing job opportunities to current and future generations, as most current employees would likely retire before expected LOM is reached; ongoing benefits from SLP Projects; and downstream socio-economic benefits.
2.5	In terms of location, describe how the placement of the proposed development will:	The Mine is situated in a mining belt and is neighboured by several mines. It therefore complements these land uses in the area. There is existing transport to workers commuting from the surrounds.

	• result in the creation of residential and employment opportunities in close proximity to or integrated with each other, • reduce the need for transport of people and goods, • result in access to public transport or enable non-motorised and pedestrian transport (e.g. will the development result in densification and the achievement of thresholds in terms public transport), • compliment other uses in the area, • be in line with the planning for the area, • for urban related development, make use of underutilised land available with the urban edge, • optimise the use of existing resources and infrastructure, • opportunity costs in terms of bulk infrastructure expansions in non-priority areas (e.g. not aligned with the bulk infrastructure planning for the settlement that reflects the spatial reconstruction priorities of the settlement), • discourage "urban sprawl" and contribute to compaction/densification, • contribute to the correction of the historically distorted spatial patterns of settlements and to the optimum use of existing infrastructure in excess of current needs, • encourage environmentally sustainable land development practices and processes, • take into account special locational factors that might favour the specific location (e.g. the location of a strategic mineral resource, access to the port, access to rail, etc.), • the investment in the settlement or area in question will generate the highest socio-economic returns (i.e. an area with high economic potential), • impact on the sense of history, sense of place and heritage of the area and the socio-cultural and cultural-historic characteristics and sensitivities of the area, and • in terms of the nature, scale and location of the development promote or act as a catalyst to create a more integrated settlement?	The proposed projects would be an environmentally sustainable land development and have a specific locational factor, being within the MQE MR and surface infrastructure area, largely on disturbed or non-sensitive areas. There would accordingly be optimal use of existing infrastructure. By continuing investments and development of MQE, continued socio-economic benefits can be generated.

2.6	How were a risk-averse and cautious approach applied in terms of socio-economic impacts? • What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)? • What is the level of risk (note: related to inequality, social fabric, livelihoods, vulnerable communities, critical resources, economic vulnerability and sustainability) associated with the limits of current knowledge? • Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?	Several socio-economic assessments and community engagements have recently been undertaken by Kangra for previous EIAs, which lessens the risks of limits of current knowledge gaps. PPP with the surrounding Communities is being undertaken as part of the EIA process. The specialist would apply the precautionary principle and gaps noted would be discussed in the EIA. Mitigation measures for any socio-economic would be discussed under in the EIA and noted in detail in the EMPr.
2.7	How will the socio-economic impacts resulting from this development impact on people's environmental right in terms following: • Negative impacts: e.g. health (e.g. HIV-Aids), safety, social ills, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts? • Positive impacts. What measures were taken to enhance positive impacts?	Measures to enhance socio-economic positive impacts include prioritisation of recruitment from the local community, providing up-skilling opportunities to the local community employed for the Projects, use of local and small-business goods and services and development of a communication strategy for the local community. Positive impacts would be enhanced through extensive public participation and involvement of the communities impacted by the development, thereby allowing suggestions and recommendations to guide the EIA process. Issues would be addressed via the Comments and Response Register. The socio-economic specialist would recommend the appropriate measures to address negative impacts.
2.8	Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development's socio-economic impacts will result in ecological impacts (e.g. over utilisation of natural resources, etc.)?	There are no additional long-term ecological impacts foreseen due to the socio-economic impacts. Current employees would continue to utilise natural resources at the same rate as they currently do.
2.9	What measures were taken to pursue the selection of the "best practicable environmental option" in terms of socio-economic considerations?	Socio-economical aspects were considered in the assessment of alternatives and the Best Practicable Environmental Option (BPEO). The proposed development would result in the continuation of the MQE and the socio-economic impacts.
2.10	What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person,	It is not anticipated that adverse environmental impacts would be distributed in a manner as to unfairly discriminate against any person. An extensive PPP is planned

	particularly vulnerable and disadvantaged persons (who are the beneficiaries and is the development located appropriately)? Considering the need for social equity and justice, do the alternatives identified, allow the "best practicable environmental option" to be selected, or is there a need for other alternatives to be considered?	to guide the development of the EIR and EMPr. Comments and suggestions by neighbouring communities would assist in ensuring that this does not occur.
2.11	What measures were taken to pursue equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing, and what special measures were taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination?	
2.12	What measures were taken to ensure that the responsibility for the environmental health and safety consequences of the development has been addressed throughout the development's life cycle?	The EIA process and EMPr would take all stages of the Project's life cycle into account and impacts specific to each phase would accordingly be addressed accordingly.
2.13	What measures were taken to: • ensure the participation of all interested and affected parties, • provide all people with an opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, • ensure participation by vulnerable and disadvantaged persons, • promote community wellbeing and empowerment through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means, • ensure openness and transparency, and access to information in terms of the process, • ensure that the interests, needs and values of all interested and affected parties were taken into account, and that adequate recognition were given to all forms of knowledge, including traditional and ordinary knowledge, and • ensure that the vital role of women and youth in environmental management and development were	An extensive PPP would be undertaken as part of the EIA process. All impacted communities are invited to provide comments and suggestions. Notices of the application and projects are being relayed in several different formats. Summary documentation describing the application process and the Projects, in English and the most prevalent additional language, is provided during the PPP process to ensure adequate understanding and efficient participation. The relevant documents in the EIA process would be made available online and at public places near to the neighbouring communities.

	recognised and their full participation therein was promoted?	
2.14	Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community (e.g. a mixture of low-, middle-, and high-income housing opportunities) that is consistent with the priority needs of the local area (or that is proportional to the needs of an area)?	As previously stated, the Projects are purely an expansion of existing activities. Therefore, it is unlikely that any additional opportunities would arise because of the Projects, but it would ensure the continuation of socio-economic benefit. Current employees would benefit from extended job security and support for their dependents, who are from various segments of the community.
2.15	What measures have been taken to ensure that current and/or future workers will be informed of work that potentially might be harmful to human health or the environment or of dangers associated with the work, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected?	Kangra MQE would undertake all activities under the guidance of the country's labour, employment and health/safety laws and its policies and procedures. The EMPr would further provide guidance for HS measures that must be implemented to ensure that employees are not subjected to adverse health conditions or dangers without the correct training, equipment, and supervision.
2.16	Describe how the development will impact on job creation in terms of, amongst other aspects: • the number of temporary versus permanent jobs that will be created, • whether the labour available in the area will be able to take up the job opportunities (i.e. do the required skills match the skills available in the area), • the distance from where labourers will have to travel, • the location of jobs opportunities versus the location of impacts (i.e. equitable distribution of costs and benefits), and • the opportunity costs in terms of job creation (e.g. a mine might create 100 jobs, but impact on 1000 agricultural jobs, etc.).	Temporary jobs would be created during the construction phase, ranging from 100 opportunities and local skilled labour would be encouraged. During the operational phase minimal job opportunities would exist as the infrastructure would fit into the current operations and staff component.
2.17	What measures were taken to ensure: • that there were intergovernmental coordination and harmonisation of policies, legislation and actions relating to the environment, and • that actual or potential conflicts of interest between organs of state were resolved through conflict resolution procedures?	The PPP invites comment and input from all levels of government relevant to the Proposed Project- including the local municipality and various other relevant government departments. For those government arms that have specific issues related to the development, consultation meetings would be arranged to resolve those. Comments from these government departments would be before the decision maker at the DMRE.

2.18	What measures were taken to ensure that the environment will be held in public trust for the people, that the beneficial use of environmental resources will serve the public interest, and that the environment will be protected as the people's common heritage?	An intensive EIA process would be undertaken, including investigation into socio-economic factors, to ensure that the environment is protected as far as possible. This section on the need and desirability of the Projects illustrates that it would be in the public interest and there would be beneficial use of environmental resources.
2.19	Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left?	The EMPr would include implementable and realistic mitigation measures, which would allow for impacts to be mitigated and managed as far as possible. The proposed project would remain in place for the foreseeable future; however, rehabilitation measures would ensure that the legacy is minimised as far as possible.
2.20	What measures were taken to ensure that the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects will be paid for by those responsible for harming the environment?	Kangra MQE would increase the financial provision as it understands potential liability under the polluter pays principle and its responsibilities under duty of care under NEMA and committed to undertake concurrent rehabilitation and adhere to its environmental management system requirements and EMPr conditions.
2.21	Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the best practicable environmental option in terms of socio-economic considerations?	Please refer to Chapter 5 of this report wherein alternatives are discussed in detail.
2.22	Describe the positive and negative cumulative socio-economic impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and other planned developments in the area?	Cumulative impacts of the Proposed Projects include: • Additional temporary jobs and income during construction, in addition to other activities providing jobs in the landscape (positive). • Improved local employment and income, reduced poverty, and contribution to local economy, in addition to other projects and activities in the landscape (positive). • Project-induced in-migration in addition to in-migration from other mining activities and projects, (negative). • Increased nuisance factors- as the projects and other industrial activities act as sources of traffic, dust, and noise pollution (negative). • Increased resource use (water and electricity) of the Projects, in conjunction with all other resource-users in the landscape (negative). • Impact on external costs to local communities caused by cumulative impact of projects (negative).

		• Community safety related to existing industrial activities, other mining activities in the area act as additional sources of traffic, dust and noise pollution (negative). Residual impacts include: • Temporary jobs and income during construction- up-skilled labour force (positive). • Project-induced in-migration- additional pressure on provision of housing and related infrastructure and health, emergency, and safety services (negative). • Local employment and income- up-skilled labour force (positive). • Sense of place- visual impact of the projects and the residual impact on the sense of place and environmental risks possibly impacting on the sense of place (negative). • Increased nuisance factors (dust and noise) and resultant potential health risks (negative). • Environmental pollution risks (negative).

5 PROJECT ALTERNATIVES

In accordance with the principles stipulated in NEMA it is required that various alternatives be investigated when considering a development which may impact significantly on the environment, in order to implement the Proposed developments. This means that the options will be assessed in such a manner that the alternative which has the most benefit or causes the least environmental damage to the natural environment is chosen. This option also needs to be of such a nature that the capital and social cost incurred will be of an acceptable nature to society.

Biophysical and socio-economic aspects are considered when investigating alternatives.

NEMA defines development alternatives are defined in relation to a proposed activity as different means of meeting the general purposes and requirements of the activity, which may include alternatives to the–

- property on which, or location where it is proposed to undertake the activity.
- type of activity to be undertaken.
- design or layout of the activity.
- technology to be used in the activity.
- operational aspects of the activity; and
- option of not implementing the activity.

For the purposes of this Project, rigorous Feasibility Studies and a scoping level assessment were undertaken by the Professional Team, and following on from the above, the alternatives identified as applicable to assess in this S&EIR process are as follows:

1. Property/Location Alternatives
2. Design/Layout Alternatives
3. "No-Go" Alternative (this is a mandatory option)

In considering project alternatives, must be highlighted that the proposed projects are located within an area classified as a "Brownfields Site" and there are various limiting factors pertaining to availability of suitable land and restrictions experienced due to biodiversity sensitivity in the Area.

Based on the contextual information, and described in detail below, there is no evidence to suggest that other alternatives should be investigated for the proposed projects.

5.1 Property/Location Alternatives

Due to the nature and location of the current activities the proposed project is to be positioned in the locations and on the properties on which current surface mine activities are

undertaken; and in accordance with current operational requirements and restrictions, including topography and surface hydrology and wetland systems.

MQE WWTP Project:

The purpose of the WWTP is to *treat contaminated water* resulting from MQE operations generally. All contaminated water, albeit from the processes on the site, activities from other interrelated sites or the identified decant point (refer to **Figure 2-3**), ends up in the existing PCD complex as indicated in the figure below.

The main consideration for the location of the WWTP was current surface structures and infrastructure, the layout thereof and available land; the proximity to the contaminated water to be treated whilst avoiding environmentally sensitive areas as far as practically possible. The most feasible and practical location is therefore right next to the PCD complex on previously disturbed land, indicated above by the yellow circle.

Similarly, the most feasible locations for the associated infrastructure was determined, using as far as possible existing routes and disturbed areas for the access to the WWTP; the proposed Brine PCD and pipelines.

No additional feeder pipelines to transport contaminated water to the PCD complex are required, existing pipelines are sufficient. The WWTP (indicated in turquoise blue) will however require new intake and outlet pipelines (indicated in blue); a treated effluent discharge pipeline (indicated in magenta) to the discharge point at the Heyshope Dam; and a brine pipeline (indicated in yellow) to the Brine PCD (indicated in orange); as depicted in the figure below.

MQE CDF Project:

The existing MQE Discard Dump (DD) is located to the north-west of the coal washing plant (indicated in yellow) with the proposed new MQE CDF located further west of the existing MQE DD (indicated in orange) as can be seen in the picture below.

As indicated earlier, the new MQE CDF is proposed to be located within the exact footprint of the previously approved MQE New DD. As such, no further location alternatives were

identified nor investigated in this assessment process, however, a short summary of the assessment undertaken by Hatch in their 2011 Concept Study to determine the preferred location alternative is provided below.

The following six (6) alternatives were proposed for the MQE New DD and were assessed by Hatch in their 2011 Concept Study (refer to the figure below):

- Site A: situated to the east of the coal washing plant;
- Site B: situated to the north of the coal washing plant;
- Site C: situated to the north west of the coal washing plant and includes the existing MQE DD site;
- Site D: situated to the west of the current wash plant position and is located on the coal reserves in the area known as Maquasa West;
- Site E: is an open cast excavation situated approximately 2.4km to the west of the current wash plant position in the Maquasa West Open Cast section; and
- Site F: The site is situated approximately 3.2km to the west of the current wash plant position.

Disposal at Site E would involve disposal into an open cast excavation. The difficulty in controlling the acid mine drainage (AMD) generated in the open cast excavation was considered a fatal flaw and was therefore eliminated as an option. The assessment of the remaining sites is summarised in Table 5-1.

Table 5-1: MQE DD Location Alternatives assessed by Hatch in 2011.

SITE ID	ADVANTAGES	DISADVANTAGES	COMMENTS
Site A	• The relatively flat topography. • The close proximity (±0.2km) to the proposed plant position. • The dump cannot sterilise any coal reserves.	• The close proximity (± 0.6km) to the Heyshope Dam. • The collected seepage must be handled by a pumping system that must operate after mine closure. • The visible impact of the dump. • The polluted surface water and storm water runoff must be handled by a pumping system during operation.	No comment
Site B	• The close proximity (± 0.5km) to the proposed plant. • The dump can blend in with the natural topography to reduce the visible impact. • The polluted surface water and storm water run-off can be handled by a gravity system (passive). • The seepage can be handled by a gravity system (passive).	• The major seep zone that will require significant engineering design to overcome and will have a low confidence level of success. • The Site is located partially above the old mined out area and the correct as mined out survey should be sourced to establish how many pillars have been left after mining activities stopped. • The depth to underground workings is approximately 30 m.	Steep zone
Site C	• The dump can blend in with the natural topography to reduce the visible impact. • The polluted surface water and storm water run-off be handled by a gravity system (passive). • The seepage can be handled by a gravity system (passive).	• That it is (± 1.2km) from the existing washing area. • The Site is located directly above the old mined out area and the correct as mined out survey should be sourced to establish how many pillars have been left after mining activities stopped.	Above old mine out area including existing Discard Dump
Site D	• The dump can blend in with the natural topography to reduce the visible impact. • The polluted surface water and storm water runoff can be handled by a gravity system (passive). • The seepage can be handled by a gravity system (passive).	• The difficulty in containing seepage. • The distance (± 1.9km) from the proposed plant position. • The Site is located partially above the old mined out area and the correct as mined out survey should be sourced to establish how many pillars have been left after mining activities stopped.	AMD (Acid Mine Drainage) could exclude this site.
Site F	• The dump is on a slope which faces away from the Heyshope dam and Driefontein and therefore the visual impact is reduced. • The two naturally occurring clay layers within the soil profile, and the elevation of the ground water is below the second layer. • The dump cannot sterilise any coal reserves.	• The distance from the current washing plant position. • The introduction of a pumping system to return the seepage to the plant during the operational life.	No comment

5.2 Design/Layout Alternatives

A brief summary of the aspects considered for the potential design and/or layout alternatives for the proposed projects are outlined below.

MQE WWTP Project:

As indicated in Section 2.1, the potential management/remedial measures for contaminated water present at MQE was first identified in 2018 by GCS as part of the Numerical Groundwater and Transport Model Update for the Maquasa Operations and then further investigated by GFK Consulting Engineers as part of their investigations to determine the most appropriate way forward in this regard.

Tabulated below in Table 5-2 is comparative review of the advantages and disadvantages for investigated management/remedial measures for the contaminated water.

Table 5-2: Contaminated Water Management Options

	Advantages	Disadvantages
Water Treatment	• Reliable constant flow. • Clean water discharged. • Provide water to the community/local municipality (charge a rate and salvage some costs). • Must operate at constant design flow rate. • Can utilise off peak pumping hours/rates. • High surety for surplus water management.	• High discharge rate may cause erosion (depending on eventual water use). • High capital costs. • Sludge disposal from lime dosing to increase pH (can be managed as pre-treatment in PCD). • Brine disposal (would require WUL & waste classification for storage).
Evaporators	• No sludge/brine management. • Can manage evaporators as seasons change to reduce operating costs. Would not recommend as buffer capacity for summer must be created in winter. • Lower capital costs	• Can only evaporate over PCD as salts cannot fall on clean areas. • Weather determines evaporation efficiency, hence may affect quantity of water managed each month. • Can only pump for about 10 hours per day (max 12 hours). • Water is lost in the system. • Maintenance issues. • Unreliable Eskom power will affect pumping. • Backup generator and increasing diesel costs. • Low surety for surplus water management

It was found that active treatment is the most feasible solution due to the location of the decant point, location of existing infrastructure such as the PCD's, the high contaminated water flow rates (4500m^3/day) to be treated and the required discharge quality.

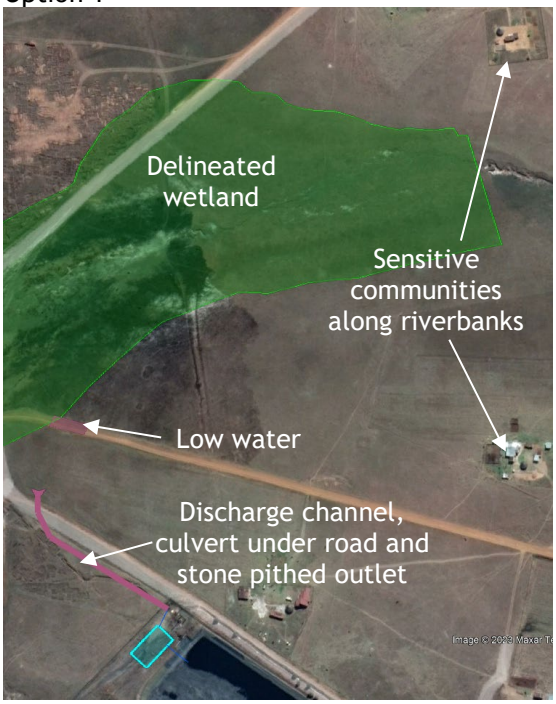
Passive treatment systems are typically limited to 50l/s inflow rates, making such a system unfeasible and nearly impossible to implement.

Active treatment is further favored over mechanical forced evaporation of the surplus water, as the efficiency of such an evaporation system is dependent on the weather, the limited pumping hours (maximum 12 hours per day), as well as special constraints (must be pumped/evaporated over the PCD's due to salt load).

Removing the elevated salt concentrations in the contaminated water, such as sulphates and total dissolved solids (TDS) to the required discharge quality would create the brine by-product. Due to the highly concreted salt loads in the brine, it will be disposed of in lined brine evaporation ponds. The brine ponds will be constructed in cells to allow a portion to dry whilst the other remain in operation. The dried salts will at the final stage be removed from the brine evaporation ponds and will be disposed of on the CDF which will be Class C lined and have concrete lined dirty water channels that manage and dispose any dirty water runoff to the Class C lined PCDs.

Treated effluent discharge options were also investigated and due to site sensitivity constraints, a slightly longer route with a lessened impact on the surrounding site was identified as the preferred option as explained below.

Option 1



The WWTP outlet will discharge into a channel which will route the water through a culvert at the first road opening into a stone pitched outlet to the open field. Provision has been made for a low water bridge at the next road with final discharge into the wetland.

Option 2

The WWTP outlet will discharge into an underground pipeline following the fence line and existing roadways, towards a protected discharge point into the Heyshope Dam.

From the above, it is clear that Option 2 is the preferred alternative with the least potential impact associated with it. Due to the high erosion potential, risk to the communities, and disturbance to the ecological and water resources associated with Option 1, it was deemed to be unfeasible and thus Option 2 was identified as the preferred alternative for further investigation.

MQE CDF Project:

Similarly, to the discussion around property/location alternatives for the MQE CDF, the design alternatives have previously been investigated and are still applicable. The determining factor for the preferred alternative is however again associated with the nature and location of the current activities; the location, extent and design of the previously approved MQE DD; the current operational requirements and restrictions, whereby specifically a co-disposal facility is required. The preferred alternative is therefore as explained in Section 2.2.

5.3 No Go Alternative

The EIA Regulations, 2014 (as amended) requires that all development alternatives be included into the investigation process. The no-go option would be comparatively assessed against the above-mentioned alternatives during the EIA phase and will act as a baseline against which all the other development alternatives are measured.

The “no-go” option would result in the MQE projects not being implemented, i.e. not constructing the WWTP to treat contaminated water at the site, and not constructing the CDF to accommodate the required discard and slurry produced at the site.

Should the new CDF not be realised, disposal capacity for the wastes produced at MQE will run out and operations at MQE may need to cease. The no-go option would thus result in a significant economic loss for Kangra (Maquasa Operations); the surrounding community; the municipality; and at local, provincial, and national macro-economic levels. The loss of employment would be immense, as workers often support entire families in an area with high unemployment rates. Furthermore, the benefits that flow from the MQE in terms of local economic development projects and skills development training to employees would be lost.

Additionally, the potential for inappropriate disposal of wastes produced at MQE without having established the new CDF increases the environmental risk to the surrounding sensitive landscapes exponentially. The risk for resource water pollution of the Heyshope Dam as a result of the continued decant of untreated contaminated water will also increase with no establishing the new WWTP.

Consequently the “no-go” alternative is not the preferred alternative.

5.4 Concluding Statement of Preferred Alternatives

Based on the preliminary results of scientific studies done and socio-economic consideration, the following concluding remarks are made regarding the preferred alternatives:

- MQE WWTP & Associated Infrastructure: A few wetlands of low sensitivity are in the area. Towards the south medium sensitivity wetlands are found. The preferred alternative as described in Section 2.1 is deemed to be the only viable option for further investigation.
- MQE CDF & Associated Infrastructure: A few wetlands with low sensitivity are in the CDF footprint's location. This is due to previously mined areas. This alternative is however still deemed to be the preferred alternative as explained in earlier sections.

6 ENVIRONMENTAL BASELINE

The baseline environment is described within this chapter. The baseline environment provides a status against which to assess the proposed project activities and potential impacts.

6.1 Geology

6.1.1 Regional Geology

The geology of the region comprises Vryheid Arenites, a sedimentary rock composed of sand sized fragments irrespective of composition, thick beds of yellowish to white cross-bedded sandstone and grit, which alternate with beds of soft, dark-grey, sandy shale and a few seams of coal. It would appear as if the underlying geological patterns do not have a significant effect on the vegetation development.

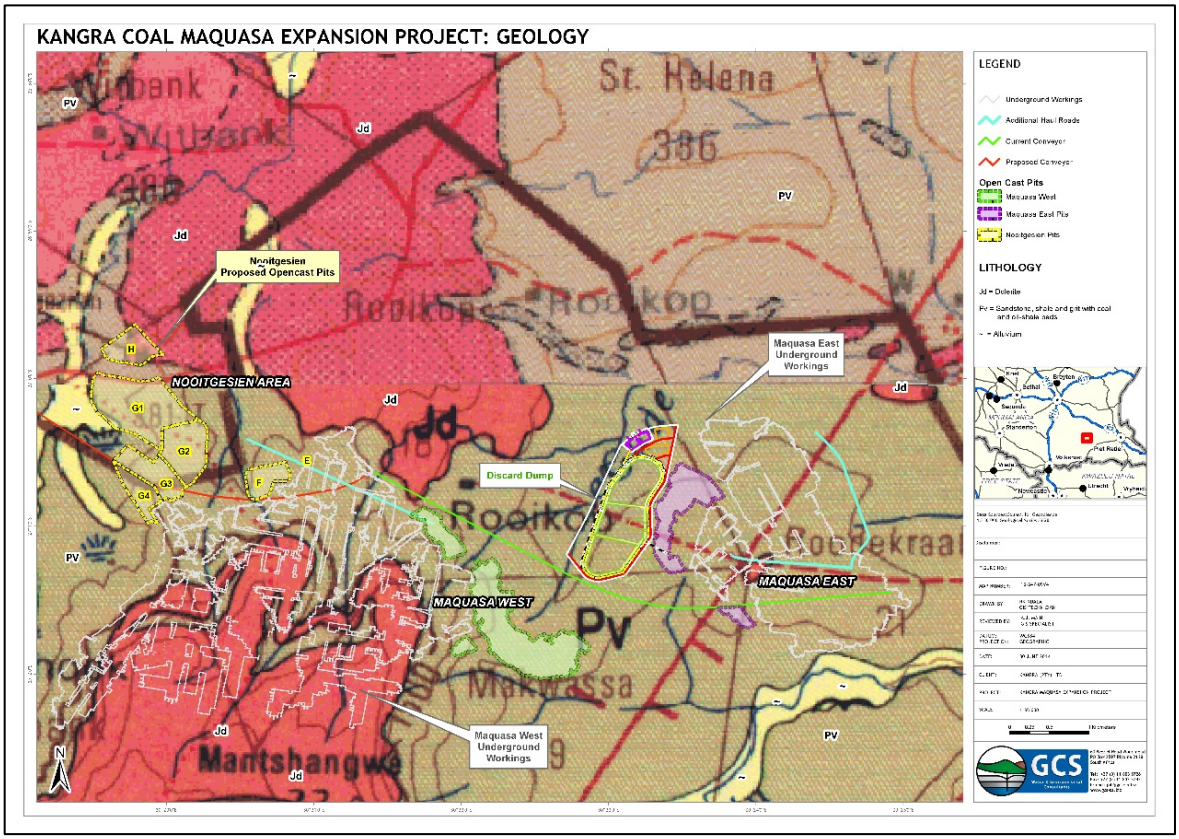


Figure 6.1 Geology of the project area

6.1.2 Local Geology

The Quaternary Period deposits, representing the youngest period in geological history, consist of alluvial sands that occur along the major rivers as well as surface ferricrete. The area is generally underlain by sedimentary rocks of the Ecca Group, a subgroup of the Karoo Supergroup. These sediments form part of a segment of the northeastern margin of the depositional Karoo Basin. The sedimentary rocks have been deposited discordantly on the

basement.

In this area of the Karoo Basin, the Ecca Group consists of the Pietermaritzburg Shale Formation at the base, followed by the Vryheid Formation, which is composed predominantly of sandstone, and the Volksrust Shale Formation at the top. The Vryheid Formation comprises a lower fluvial-dominated deltaic interval, a middle fluvial interval and an upper fluvial-dominated deltaic interval.

The fluvial deltaic intervals are the fluvial sequences of sediments deposition as a delta. This process explains the lithological units of Vryheid which are lower sandstones, coal zone and upper sandstones. The Volksrust Formation consists of silty shale, mudstone and siltstone or sandstone lenses towards its upper and lower boundaries (Johnson, M.R *et al.*, 2006).

Sedimentary rocks of the Vryheid Formation of the Ecca Group underlie the study area. The Formation is characterized by thick beds of yellowish to white, cross-bedded sandstone and grit, which alternate with beds of soft, dark-grey, sandy shale and a few seams of coal in the middle of the formation. All the coal seams occur within the Vryheid Formation of the Ecca Group (Karoo Supergroup). The basal rocks comprise of lava, tuff, schists and chert of the Undifferentiated Onverwacht Group, which forms part of the Barberton Sequence. Table 6.1 shows the lithostratigraphy of the area.

Table 6.1 Lithostatigraphic Sequence

SUPERGROUP	AGE (Ma)	GROUP	FORMATION	DESCRIPTION
	65		Surface deposits	Alluvium, scree & ferricrete
Karoo	570	Ecca	Volksrust	Shale
			Vryheid	Grit, sandstone, shale, coal
			Pietermaritzburg	Micaceous shale
Barberton	2061	Undifferentiated Onverwacht		Schist, volcanic rock, tuff, chert, agglomerate

The Maquasa West and East Coal Field deposit is part of a very large basin extending far to the West and North and cutting off against a basement headland towards the East in the Amsterdam and Piet Retief directions.

The most important coal seams in the Maquasa West and East Coal Field are as follows:

- GUS SEAM (Top) Moderately to well-developed 1.0 - 2.0m thick; and
- DUNDAS SEAM (Bottom) Varies in thickness and remains well developed.

The coal seam lithology is mixed with subordinate dull to dull lustrous bands within an essentially mixed, mainly bright laminated coal sequence. A coarsely pyrite/siderite spotted horizon occurs throughout the upper half o*f* the seam. The roof consists of a thick 15 – 20m competent, coarse-grained sandstone unit up to 100 m. However, in certain areas the roof is associated with a combination of mudstone, siltstone and shale.

The floor of the coal seams is generally competent and consists of siltstone/sandstone rock types. During the deposits of sediments in the still sagging Karoo basin, tension in the crust due to continuing sagging leads to failure and subsequently intrusion of Post-Karoo dolerite sills and dykes along weak zones such as fractures, fissures and faults. Consequently, dykes and sills varying between a few centimetres to a couple of metres in thickness intruded the study area.

The highest topographic features comprise resistant remnants of the B4 and B6 dolerite sills. The B4 sill basically lies concordant to sedimentation at the base of the Volksrust Formation. Contrasting to the B4 sill, the B6 sill is highly transgressively active and creating complex ring dyke structures that transgress the coal, causing vertical displacement and areas of burnt or devolatilised coal.

6.2 Topography

The regional topography can be described as undulating with elevations ranging from 1750 (metres above mean sea level) mamsl in the highest regions to the south-east of the mining operations in the south-eastern corner of the remainder portion of the farm Kransbank, to 1300 mamsl at the lowest point of the Heyshope dam to the south-east of the Maquasa East operations.

The regional topography is characterised primarily by the two (2) catchments of the Mpundu (south - southeast of the mining operations) and Hlelo (west / north-west of the mining operations) rivers. The ridge separating the Maquasa and Nooitgesien operations acts as the boundary between these two (2) catchments. A number of smaller non-perennial rivers form part of these river systems including small marsh and swamp areas as result of inundation during the wet season.

The Maquasa East and West mining operations are located on the eastern facing slopes of the Heyshope dam valley with elevations ranging from 1545 to 1305 mamsl with an average gradient of 1:19 in an easterly direction. The topography of the project area is presented in Figure 6.2.

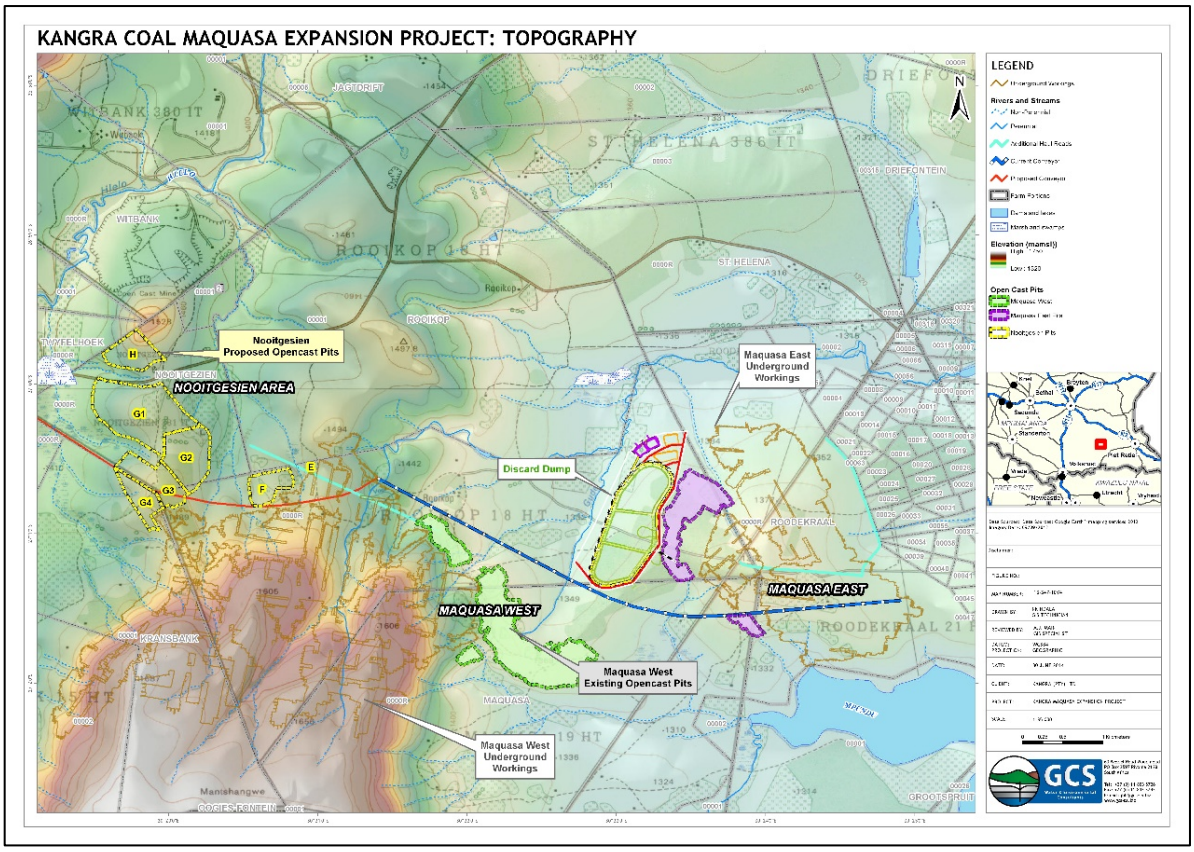


Figure 6.2 Topography of the project area

6.3 Climate

The study area is in Water Management Area 12: Usutu to Mhlatuze and falls over 2 quaternary catchment areas namely W51B and W52A.

6.3.1 Temperature

Daily summer temperatures in the area range between 15 - 27°C. Winter temperatures range between 3 - 17°C. Humidity is higher during the summer months, ranging between an average of 80% during November and 65% during June.

6.3.2 Rainfall

Rainfall is varied both spatially and temporally. WR2005 suggests a Mean Annual Precipitation (MAP) for the W52A catchment of 836mm and for the W51B catchment of 864mm. It was decided to use a MAP of 839mm which was obtained from the Design Rainfall Estimation for S.A. utility (Smithers & Schulze, 2002) to describe site specific rainfall. It is likely that heavy mist and fog conditions that frequently occur in early summer and also frequent heavy snowfalls that occur in the area add to the measured precipitation, but the impact of this added precipitation has largely been ignored in this report.

A summary of the average monthly rainfall over an 85-year record period of the W52A quaternary catchment area is shown in Figure 6.3.

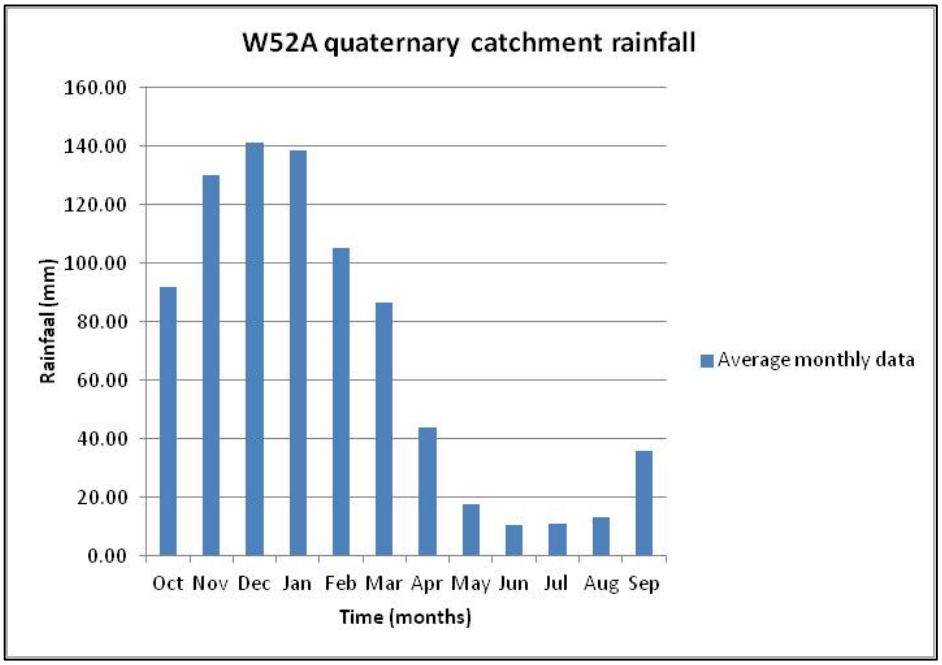


Figure 6.3 Average monthly rainfall

6.3.3 Evaporation

WR2005 indicated a Mean Annual Evaporation (MAE) of 1 400mm for the study area. Based on an estimated MAP of 839mm, this area is likely to have a water deficit. This will be determined during the Water Balance Study being undertaken as part of the Hydrological Assessment.

6.3.4 Wind

The prevailing wind direction is north, northwest during the summer months with a slight change to northeast during the months of February to April.

6.4 Soils, Land Use and Land Capability

The geology of the study area consists of sandstone and shale of the Vryheid Formation, of the Karoo Sequence (Geological Survey, 1986). The soil types found in the greater area are broadly classified as a red-yellow-grey Latosol Plinthic Catena and the appropriate land-uses classified as Forest Plantation and Grassland (Department of Environmental Affairs, 1999).

In general, the soils of the more immediate area are moderately deep (600mm – 1200mm), yellow brown to red, light- to medium-textured soils, with no significant degree of structure (ARC, 2011). This often leads to soil erosion, which is a concern generally in Mpumalanga and in the Piet Retief area specifically. These soils are of moderate to high potential for arable agriculture, with depth being the most common limiting factor.

At higher elevations in the area, the sloping topography leads to grey-brown, light-textured, structureless and comparatively shallow (300-600 mm) soils. These have low arable potential owing to the slope, lack of depth and occasional rockiness.

Soil types that are defined by prolonged periods of wetness have been identified in the study area and should be avoided. The rest of the soil forms assumed to occur in this area appear satisfactory for the construction of the proposed discard dump.
Land use around the study area includes residential use to the east and mining at Maquasa East and Maquasa West. Agricultural fields are limited and small in extent. The larger project area is characterised by the absence of any trees except for the occurrence of exotics such as Blue Gum plantations and dense stands with wattle trees.

6.5 Terrestrial Biodiversity

6.5.1 Flora

The study area corresponds to the Grassland Biome as defined by Mucina & Rutherford (VegMap, 2006). This unit is found in the eastern, precipitation-rich regions of the Highveld. Grasslands of these parts are regarded 'sour grasslands'. The proposed CDF area is located within the Eastern Highveld Grassland ecological type.

The Eastern Highveld Grassland is an 'Endangered' vegetation type and only small fractions are conserved in statutory reserves. Some 44% is already transformed by cultivation, plantations, mines, urbanisation and by building of dams. Cultivation may have had a more extensive impact, than indicated by land cover data. The Endangered status of this vegetation type warrants a medium-high environmental sensitivity. The vegetation is short, dense grassland dominated by the usual highveld grass composition (Aristida, Digitaria, Eragrostis, Themeda, Tristachya, etc.) with small, scattered rocky outcrops with wiry, sour grasses and some woody species (*Sengalia caffra, Celtis africana, Diospyros lycioides, Parinari capensis, Senegalia caffra, P. welwitchii* and *Searsia magalismontana*).

The diversity of plants within the study area represents 56 plant families, typically dominated by Poaceae (graminoids), comprising 29 species (15.3%) and Asteraceae (Daisy family, 28 species, 14.7%). The vegetation sensitivity map for the study area is shown in Figure 6.4.

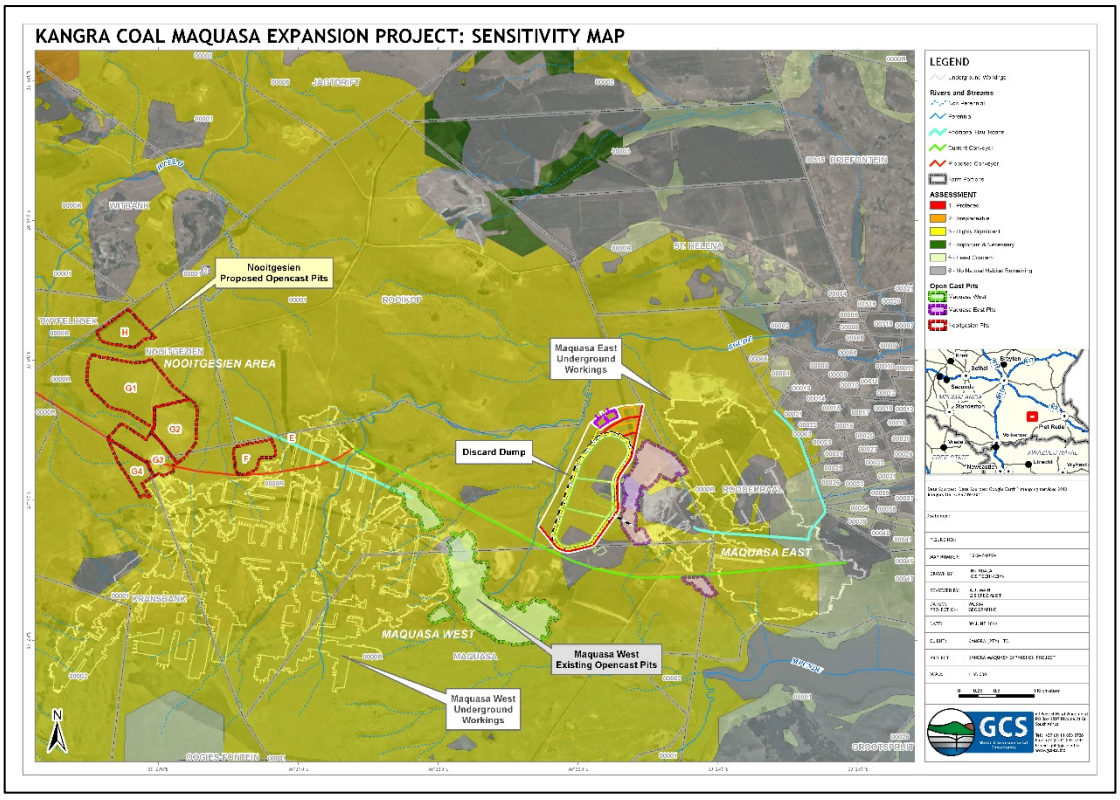


Figure 6.4 Sensitivity of the study area

6.5.2 Fauna

The presence of 59 animal taxa was recorded during the November 2012 investigation of the Maquasa East, Maquasa West and Nooitgesien sites (GCS, 2013), including the following:

- 9 invertebrates;
- 5 frog species;
- 1 reptile species;
- 40 bird species; and
- 4 mammal species.

Additionally, 33 invertebrate families were recorded in the study area; for various reasons, these animals could only be identified to family level.

The diversity of animals recorded in the study area included two (2) Red Data species, namely:

- Southern Bald Ibis (*Geronticus calvus*); and
- White-bellied Korhaan (*Eupodotis senegalensis*).

No provincially protected or alien and invasive fauna taxa were recorded in the study area during the survey period.

A total of 117 Red Data animals are known to occur in Mpumalanga (butterflies, frogs, reptiles and mammals) and in the ¼-degree grids 2630CD and 2730AB (birds).

The area investigated (proposed areas of mine expansion) is situated within the proposed Grassland Biosphere Reserve which is undoubtedly one of the most important biodiversity areas in Africa and despite "proposed Biosphere Reserve" status, this area is severely threatened, and it faces some monumental conservation problems. It might be reasoned that the study area comprises only a small fraction of the entire proposed Grassland Biosphere Reserve, but cumulative anthropogenic impacts relevant to the faunal communities of the region need to be taken in consideration. Most of the study area is characterised by untransformed wetland and grassland faunal habitat. The sensitive nature of these untransformed habitats is confirmed by the presence of the red data species of Southern Bald Ibis (*Geronticus calvus* – *Vulnerable*) and White-bellied Korhaan (*Eupodotis senegalensis* – Vulnerable) and the likely presence of at least twenty-eight (8) other red data species.

According to BirdLife South Africa (email, 3 March 2014- refer to Appendix B), the proposed Discard Dump is located within one of South Africa's registered Important Bird and Biodiversity Areas (IBAs)

Even though IBAs do not have formal protection status it is important to indicate in EIA reports when a development falls within an IBA, therefore cognisance will be taken of this IBA during the Terrestrial Biodiversity Investigation.

6.6 Surface Water

6.6.1 Water Management Area

The project area is located in the Inkomati-Usuthu Water Management Area and falls within the W51B and W52A quaternary catchment (Figure 6.5).

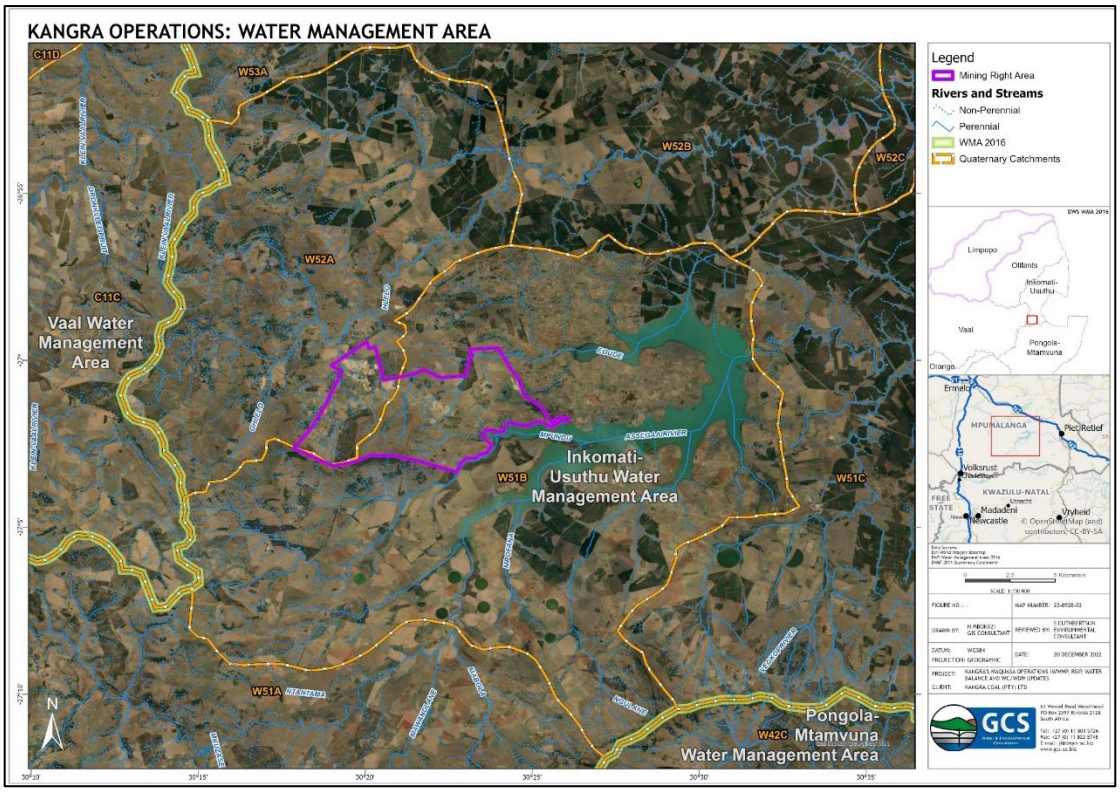


Figure 6.5: Water Management Area and Quaternary Catchments for Kangra Maquasa Operations

The project boundary area covers 42.40km^2. Majority of the project area is situated within quaternary catchment W51B which drains towards the Heyshope Dam. Only a small portion of the project area (Nooitgesien opencast area on the western site of the mining right area) is situated in W52A which drains towards the Hlelo River.

6.6.2 Surface Water Hydrology

The site area was divided into five (5) natural sub catchment areas based on natural topography and contour data. The 5 sub catchments were delineated, and runoff estimated. Two (2) sub catchments drain in a northerly direction and fall within quaternary catchment W52A (the western side of the project area) while the remaining three (3) sub catchments (eastern side of the project area) fall within quaternary catchment area W51B.

Sub catchments 3 and 4 drain in a north-eastern direction whilst sub catchment 5 drains to the southeast. Sub catchment 5 comprises a number of smaller catchments that all drain into the Heyshope dam but were lumped together to represent 1 cumulative sub catchment for the purposes of this study.

The largely rural catchments are dominated by grasslands, but mining activities and small peri-urban settlements to the east will influence runoff patterns. Surrounding areas are dominated by plantations and natural forests.

The catchment is hilly, with steep slopes and (normally) well defined, narrow streams (channels). The main catchment properties are presented in **Figure 6.6**.

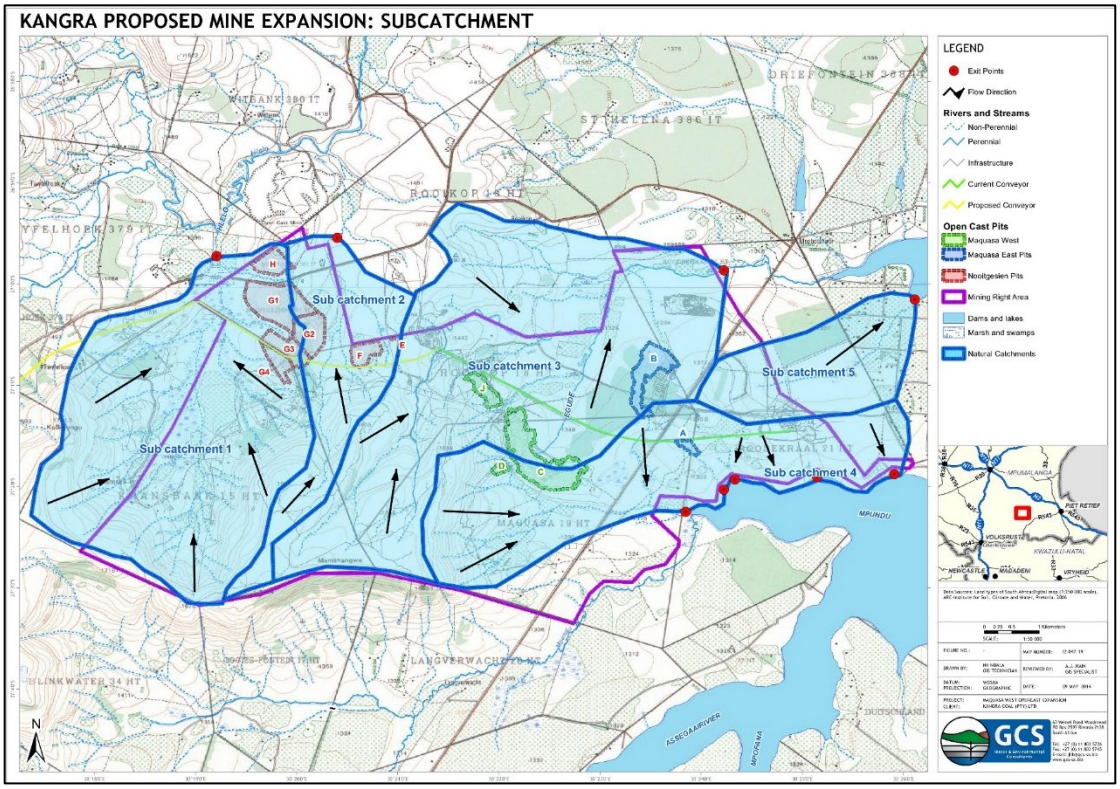


Figure 6.6: Maquasa Hydrology Natural Catchments

6.6.3 Surface Water Quality

The surface water quality results were obtained from the *Water Quality Monitoring Report for the Kangra Coal Maquasa East, Maquasa West & Nooitgesien Operations: Third Quarter, 2022 Monitoring Period'*.

6.6.3.1 Maquasa West and Nooitgesien

The Maquasa West and Nooitgesien areas both consist of mining infrastructure, open cast area, overburden dump and underground mine workings. Maquasa West and Nooitgesien share several groundwater and surface water monitoring points.

Adit 2 Water Tank was not sampled as the pipe was stolen. One surface water point (Water Treatment Maquasa Plant West) was removed from the monitoring network in July 2021 and two surface water points (Romar Opencast Settling Pond and Adit 2 Water Tank) were removed from the monitoring network in September 2022.

Surface Water Monitoring: pH levels

The following observations were made during the third quarter of 2022:

- pH levels were predominantly neutral at both the Maquasa West and Nooitgesien surface water points.
    - pH ranged between 6.7 and 7.7 at the Maquasa West points in the third quarter. Adit Stream No. 1 indicated slightly acidic pH levels in October 2022 (5.1), pH has historically fluctuated at this point; refer to Figure 6.7.
    - pH ranged between 6.3 and 7.2 at the Nooitgesien points in the third quarter; refer to Figure 6.8.

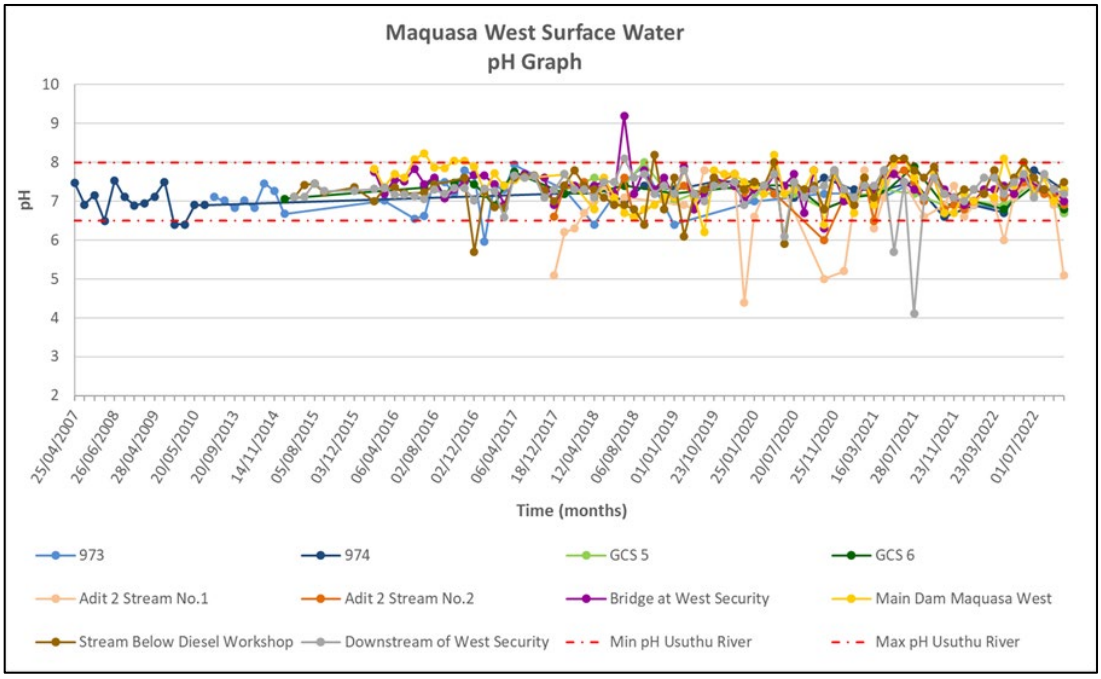


Figure 6.7: Maquasa West surface water pH graph

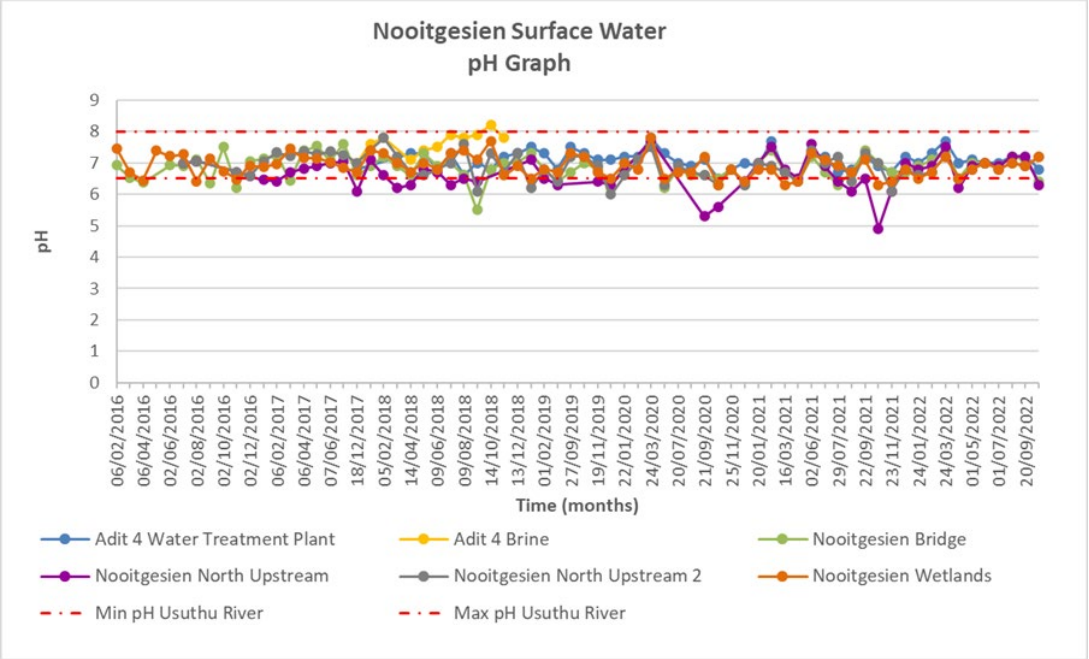


Figure 6.8: Nooitgesien surface water pH graph

Surface Water Sulphate levels

- The surface water points at both sites displayed a predominantly low impact from the site during the third quarter of 2022 (Figure 6.9 and Figure 6.10).
    - Elevated calcium was observed at Adit Stream No.2 (Maquasa West), elevated Electrical Conductivity (EC) and sodium was observed at Adit 4 Water Treatment Plant (Nooitgesien) and elevated EC and calcium was observed at Nooitgesien North Upstream 2 (Nooitgesien).
    - Additionally, elevated nitrate (6.1 mg/l) was observed at Adit Stream No.1 (Maquasa West) and elevated ammonia (17 to 21 mg/l) was observed at Adit 4 Water Treatment Plant (Nooitgesien).
    - In terms of metals, intermittently elevated aluminium (<0.35 mg/l), iron (<0.30 mg/l) and manganese (<1.45 mg/l) concentrations were observed at most points in the third quarter.
- Maquasa surface water points Main Dam Maquasa West and SW 973 indicated an impact from the site during the third quarter of 2022.
    - EC, TDS and calcium concentrations were elevated at both points. Sodium was additionally elevated at Main Dam Maquasa West in October 2022.
        - TDS ranged between 500 and 2 000 mg/l.

- Sulphate has been consistently elevated above the Usuthu River Catchment TWQG at Main Dam Maquasa West, ranging between 522 and 2 240 mg/l in the third quarter. Sulphate increased at SW 973 in October 2022, recorded as 327 mg/l; refer to Figure 6.9.
- In terms of metal concentrations, manganese was elevated at both points, ranging between 0.51 and 1.90 mg/l.

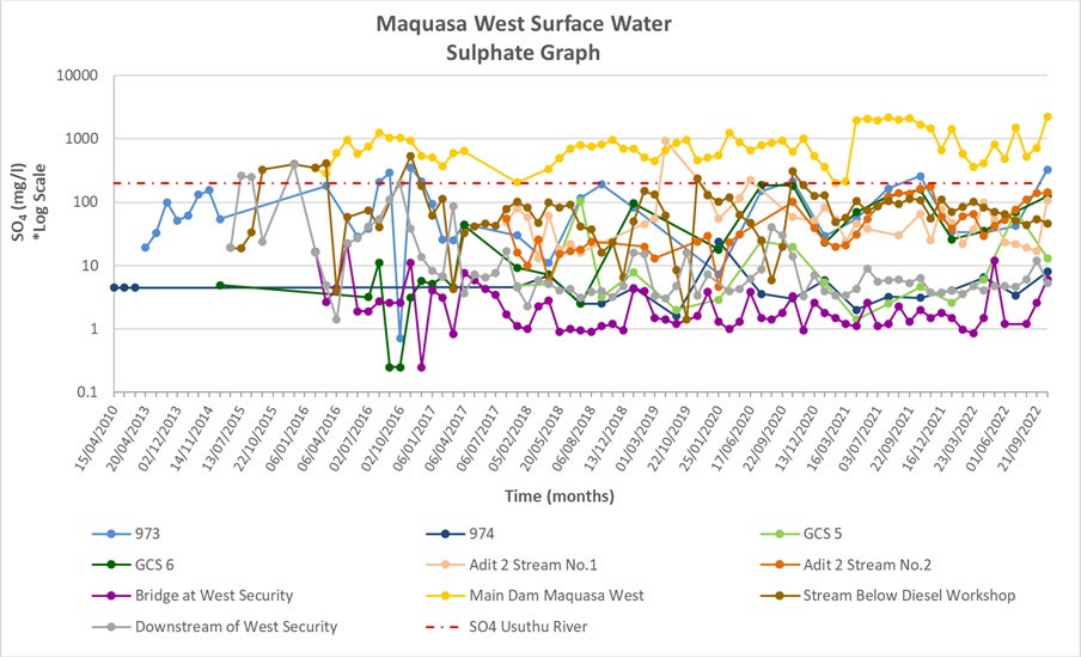


Figure 6.9: Maquasa West logarithmic surface water sulphate graph

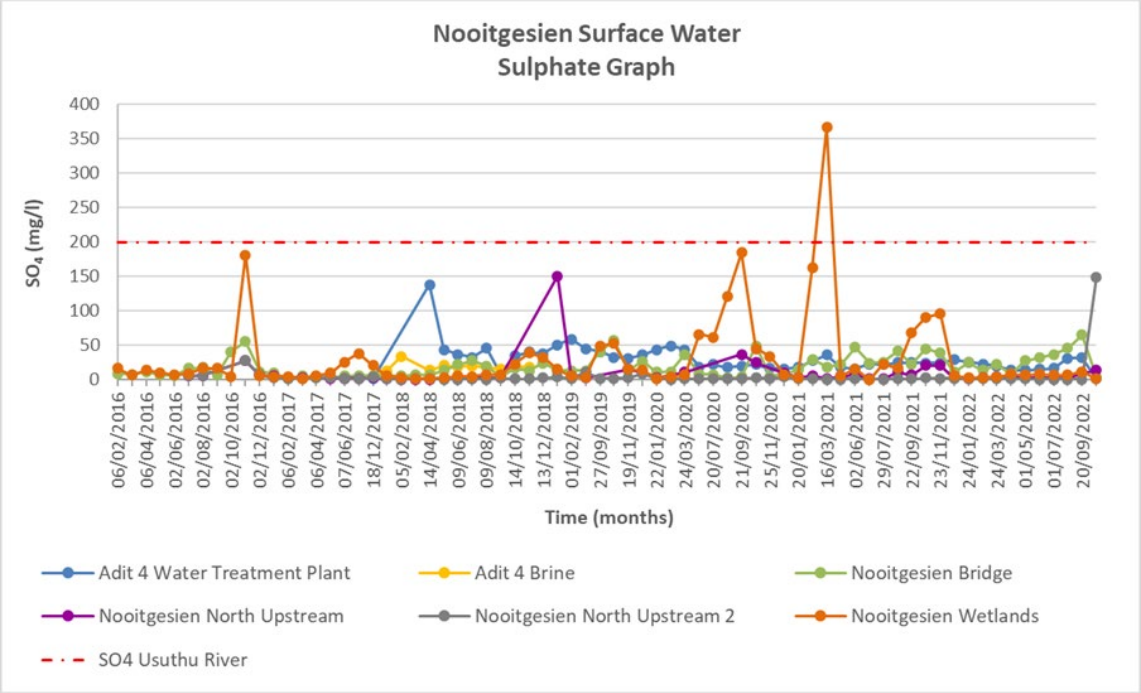


Figure 6.10: Nooitgesien surface water sulphate graph

6.6.3.2 Maquasa East

CSW04 and Canal Along Main Road were predominantly dry in the third quarter of 2022. One new surface water point (Pit D Stream) was added and two (2) surface water points (West Heyshope and SW 924) were removed from the surface water monitoring network in September 2022.

The following observations were made during the 2022 third quarter:

- Slightly acidic (5.8) pH levels were recorded at Below Highwall Seepage in October 2022. The remaining points indicated neutral to slightly alkaline pH levels, ranging between 6.1 and 8.2 in the third quarter.
- Surface water points Highwall Seepage, D/S of Natural Seepage, East Heyshope, Heyshope Dam Abstraction, Water Treatment Maquasa Plant East, West Heyshope and SW 932 displayed low to no significant impact from the site.
    - Only metal concentrations were slightly elevated at some points. Manganese was elevated at Highwall Seepage (<0.30 mg/l), iron was elevated at D/S of Natural Seepage (<0.25 mg/l) and aluminium, iron and manganese were elevated at SW 932 (<0.30 mg/l) during the third quarter.
- Surface water points Below Highwall Seepage, SW 933 and CSW04 indicated an impact from the site during the 2022 third quarter period.

- EC, TDS, calcium and sulphate concentrations exceeded the Usuthu River Catchment TWQG's at the aforementioned sites. Sodium was additionally elevated at SW 933.
    - TDS ranged between 590 mg/l and 2 800 mg/l; refer to Figure 6.11.
- Sulphate concentrations exceeded the Usuthu River Catchment TWQG at all three (3) localities ranging between 361 mg/l (Below Highwall Seepage) and 1 750 mg/l (SW 933); refer to Figure 4.10.
- Additionally, nitrate (<6.8 mg/l) was elevated at CSW04 in September 2022.
- In terms of metals, manganese was elevated at all three (3) points in the third quarter, ranging between 0.06 (SW 933) and 6.70 mg/l (Below Highwall Seepage).

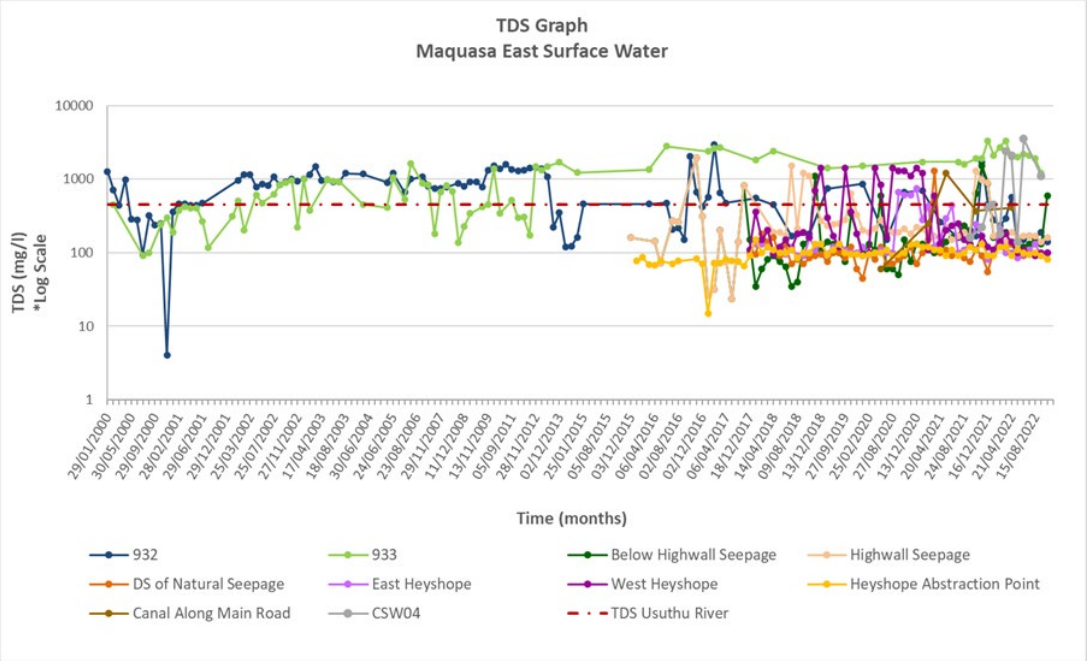


Figure 6.11: Maquasa East logarithmic surface water TDS graph

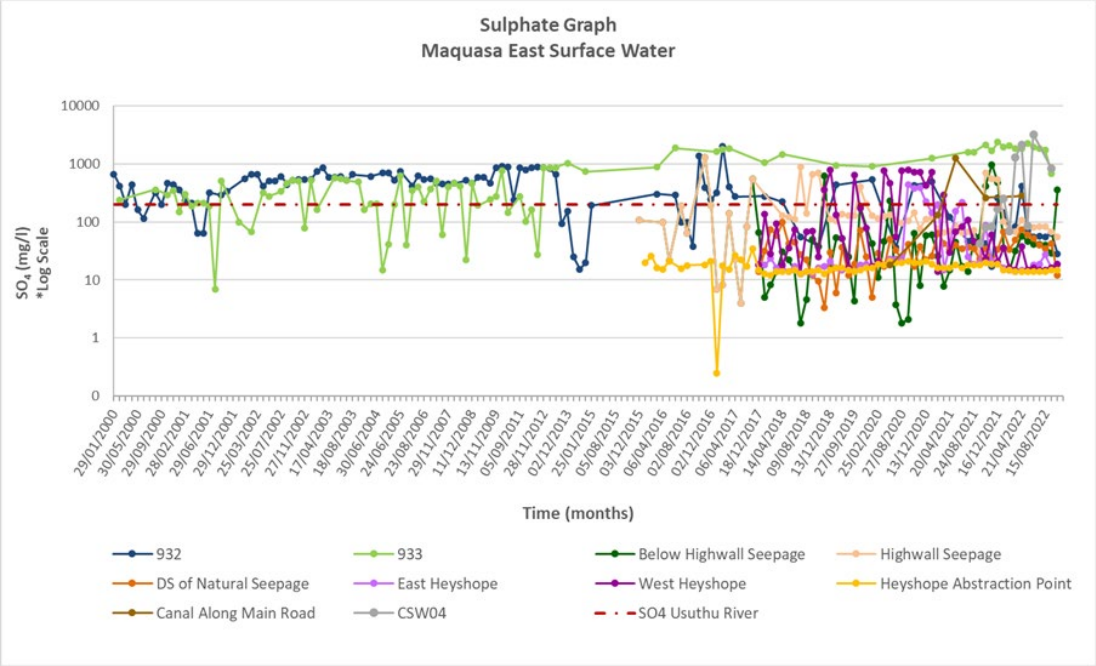


Figure 6.12: Maquasa East logarithmic surface water sulphate graph

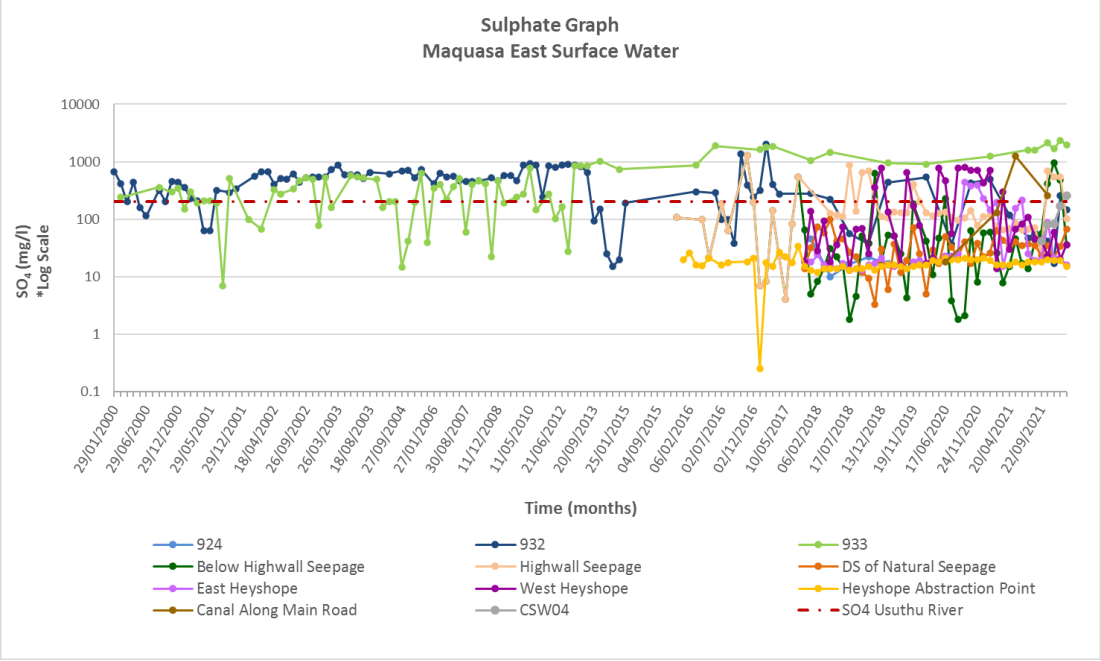


Figure 6.13: Maquasa East logarithmic surface water sulphate graph

6.6.3.3 Drinking Water

Drinking water does not form part of the Water Use License but is included in the monitoring as part of Kangra's own internal health and safety requirements. The water quality is compared to the 1996 DWAF SAWQTV for Domestic Use and the SANS 241-1:2015.

Two (2) drinking water points (Adit 2 Drinking Water and West Work Diesel Workshop) were removed from the monitoring network in July 2021 and three (3) drinking water points (Improtect Drinking Water, Improtect Clarified and Lab Tap) were removed from the monitoring network in September 2022.

The following was observed during the third quarter of 2022 at the drinking water sites:

- All drinking water monitoring points exhibited neutral to slightly alkaline pH conditions, ranging between 6.5 and 8.1.
- Lab Filtered Water and Clinic Drinking Water indicated acceptable water quality when compared to the DWA SAWQTV and SANS limits.
- EC, TDS, calcium, magnesium and sulphate concentrations were elevated above the DWA SAWQTV and/or SANS limits at West Office Kit Filter during the third quarter. TDS ranged between 1 600 and 2 100 mg/l and sulphate ranged between 1 850 and 2 650 mg/l.
    - Sulphate concentrations >500 mg/l pose an acute health effect (SANS, 2015). Possible corrosive effects as well as increased scaling problems and a slight salty taste may be detected (DWAF, 1996).
- EC, TDS and calcium concentrations also exceeded the DWA SAWQTV limits at Adit 4 RO Plant in September 2022.
- Microbiological constituent concentrations were low but present during the third quarter of 2022 at Clinic Drinking Water. The DWA SAWQTV and SANS limits are the same for *E.coli* (0 col/100 ml) and total coliforms (10 col/100 ml) concentrations.
    - *E.coli* concentrations exceeded the DWA SAWQTV and SANS limits at Mbokazi Borehole in August 2022 (2 col/100 ml); refer to Figure 6.15.
    - Total coliforms concentrations intermittently exceeded both the DWA SAWQTV and SANS limits at Mbokazi Borehole, West Office Kit Filter and Adit 4 RO Plant, ranging between 12 and 82 col/100 ml; refer to Figure 6.15.
- In terms of metal concentrations, manganese (<1.1 mg/l) exceeded the DWA SAWQTV and/or SANS limits at Madonsela, Shongwe Family, West Office Kit Filter and Adit 4 RO Plant during the third quarter.

The microbiological concentrations have historically fluctuated at these sites therefore, options for sterilisation should be identified and implemented. The water supplying these drinking water points should be managed and maintained to ensure that the drinking water quality adheres to the DWA SAWQTV and SANS guidelines for Drinking Water. Filters should also be serviced or replaced.

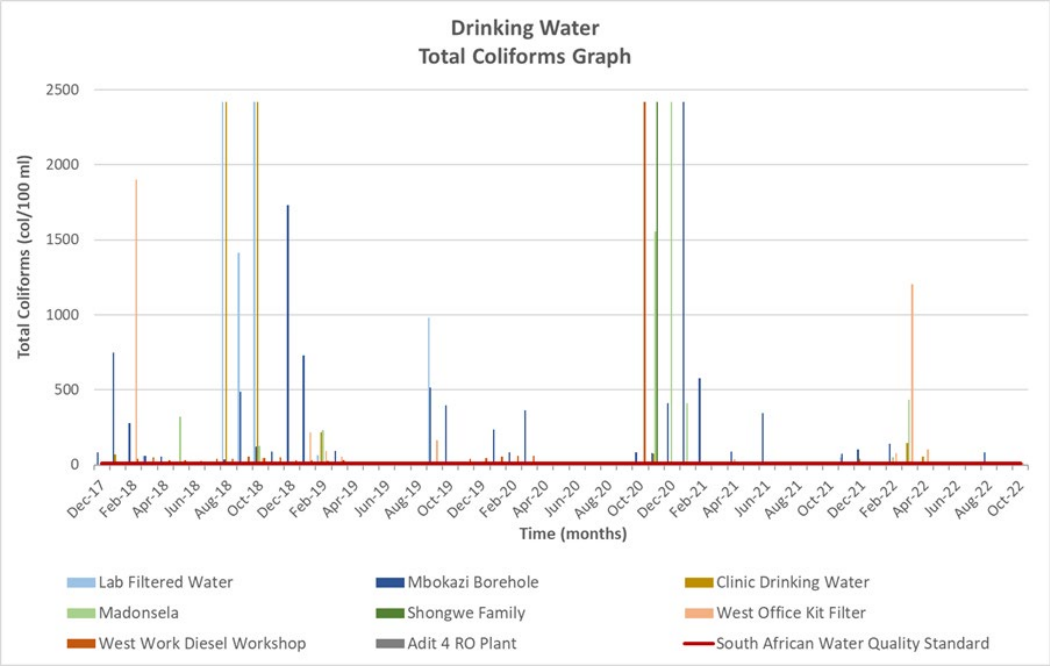


Figure 6.14: Total Coliforms graph for the drinking water points

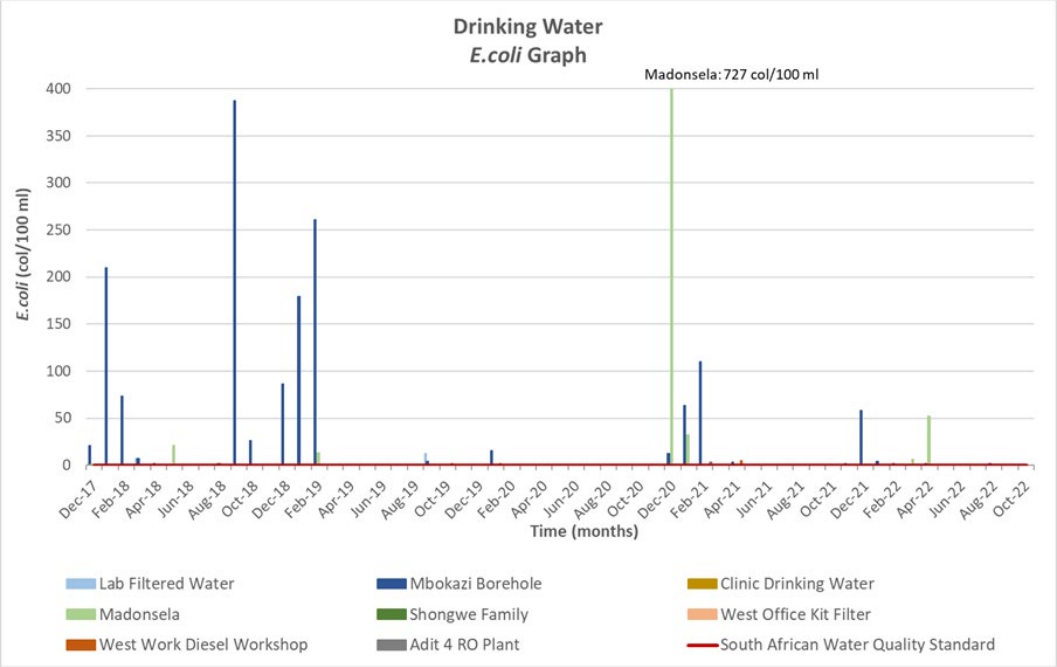


Figure 6.15: *E.coli* graph for the drinking water points

6.6.3.4 Internal Process Water

The surface water located within the plant is contained within the mine and therefore does not leave the site.

Discard Dump Dam 1 was predominantly dry. Enprotect Filter Discharge and Improtect Clarified were non-operational throughout the third quarter of 2022 and therefore could not be sampled.

The following was observed during the third quarter of 2022 at the internal process water sites:

- All internal process water monitoring points exhibited relatively neutral to slightly alkaline pH conditions, ranging between 6.3 and 8.2; refer to Figure 6.16.
- Water Treatment Maquasa Plant East showed no significant impact from the site.
- Pit D East, Pit D Stream, Plant Set Pond/ Dam 2, Plant Water Dam 3, Discard Dump Dam 1, Discard Dump Seepage 1, Inland Plant and Export Plant indicated an impact from the site during the third quarter of 2022. These containment systems store contaminated mine water and therefore typically indicate impacted water quality.
    - EC, TDS, calcium and sodium concentrations exceeded the Usuthu River Catchment TWQG's at all points, displaying similar water quality signatures.
    - All points displayed stable sulphate trends, with concentrations consistently exceeding the Usuthu River Catchment TWQG. Sulphate ranged between 1 000 mg/l (Pit D East) and 2 850 mg/l (Discard Dump Seepage 1); refer to Figure 4.15.
    - Additionally, ammonia (<2.2 mg/l) and nitrite (<6.8 mg/l) were intermittently elevated at Inland Plant.
    - In terms of metal concentrations, manganese predominantly exceeded the Usuthu River Catchment TWQG at most points, ranging between 0.13 mg/l (Export Plant) and 20.00 mg/l (Discard Dump Seepage 1).

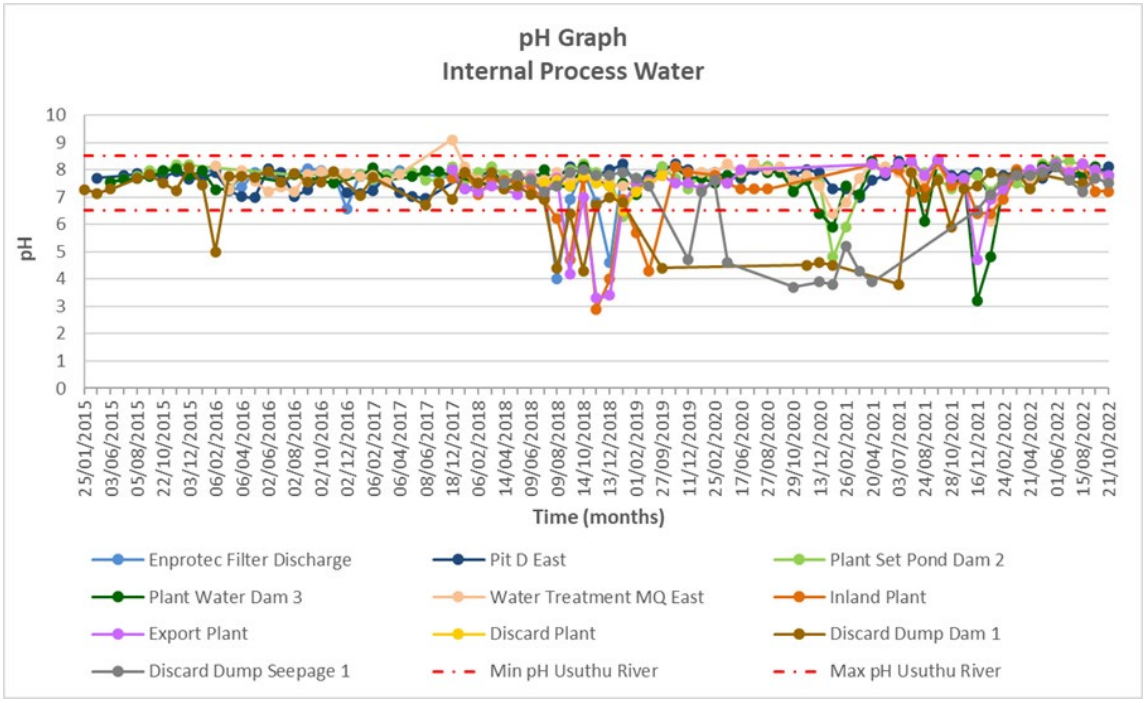


Figure 6.16: Maquasa East internal process water pH graph

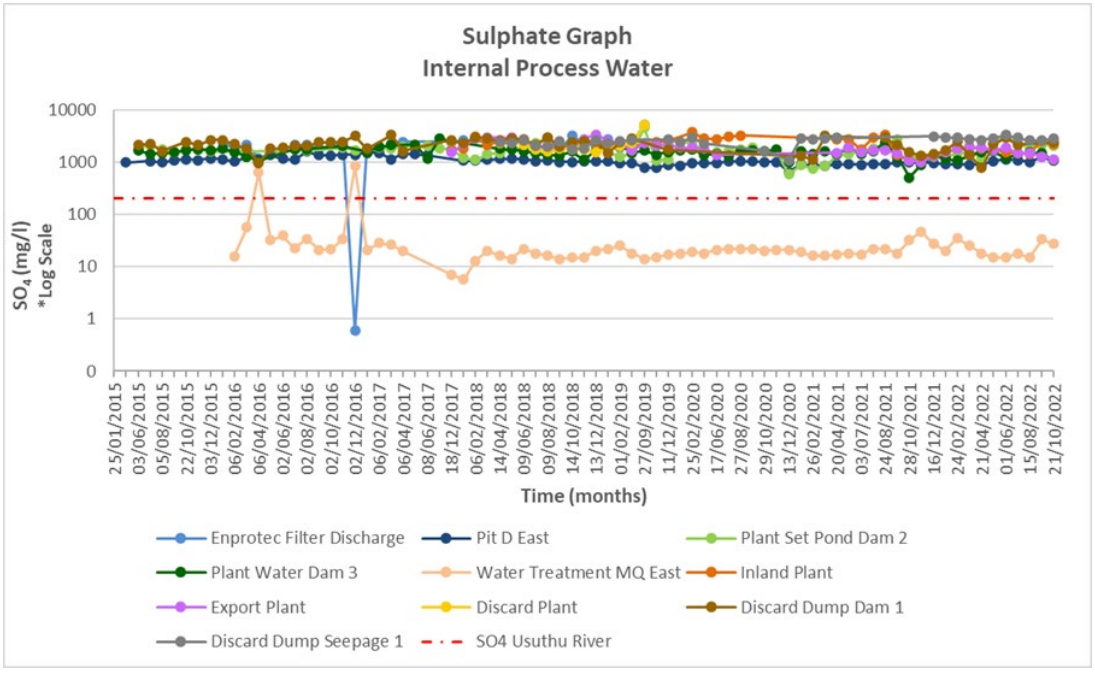


Figure 6.17: Maquasa East logarithmic internal process water sulphate graph

6.6.4 Mean Annual Runoff

Refer to Figure 6.5 for the natural catchments delineated for the mining area. Mean Annual Runoff (MAR) for each catchment was calculated as follows:

- Sub catchment 1: 2 116 386m^3;
- Sub catchment 2: 685 635m^3;
- Sub catchment 3: 2 066 412m^3;
- Sub catchment 4: 1 061 445m^3; and
- Sub catchment 5: 436 870m^3.

6.6.5 Resource Class and River Health

In South Africa, a river health classification scheme is used to standardise the output of different river systems. The document titled "Resource Directed Measures for Protection of Water Resources: River Ecosystems Version 1.0.24", dated September 1999, compiled by the DWS, provides the indexes of Attainable Ecological Management Classes (AEMC) as shown in Table 6.2. Each index is calibrated so that its results can be expressed in terms of ecological and management perspectives.

Table 6.2: Resource Classes at set out by the DWS

River Health Class	Ecological perspective	Management perspective
Natural / Excellent (Class A)	No or negligible modification of in-stream and riparian habitats and biota.	Protected rivers; relatively untouched by human hands; no discharge or impoundments allowed.
Good (Class B)	Ecosystems essentially in good state; biodiversity largely intact.	Some human-related disturbance but mostly of low impact potential.
Fair (Class C)	A few sensitive species may be lost; lower abundance of biological populations is likely to occur, or sometimes, higher abundances of tolerant or opportunistic species occur.	Multiple disturbances associated with need for socio-economic development, e.g., impoundment habitat modification and water quality degradation.
Poor Class D)	Habitat diversity and availability have declined; mostly only tolerant species present; species present are often diseased; population dynamics have been disrupted (e.g., biota can no longer reproduce, or alien species have invaded the ecosystem)	Often characterised by high human densities or extensive resource exploitation. Management intervention is needed to improve river health – e.g., to restore flow patterns, river habitats or water quality.

6.6.5.1 Determining Current Management Class for the Water Resource

With reference to 'A guideline for water use authorisation in the mining sector, Edition 1 (2005),' DWS has identified the Drainage Region as being: W51B and W52A. Drainage region W5 is classified as:

- **High** in its Ecological Importance and Sensitivity (EIS);
- **Moderately Modified**, Class C (W51B) in its Present Ecological State (PES); and
- **Largely Natural**, Class B (W52A) in its PES.

6.6.5.2 Determining Sensitivity of the Water Resource in the vicinity of the Mine

In the short term, with the future Management classes not defined, the precautionary principle will apply, and the vision for the catchment will be based on ecological criteria, as tabulated in Table 6.3. Management measures in the short term for W51B have been evaluated as improving the PES of the River to a Class B/C. Management measures in the short term for W52A have been evaluated as improving the PES of the River to a Class A/B (Table 6.4).

Table 6.3: Short Term PES and EIS for W51B

			Ecological Importance and Sensitivity (EIS)			
			VH	**H**	**M**	**L**
Present Ecological State (PES)	**A**	**Pristine**	A Maintain	A Maintain	A Maintain	A Maintain
	B	**Natural**	A Improve	A/B Improve	B Maintain	B Maintain
	C	**Good**	B Improve	B/C Improve	C Maintain	C Maintain
	D	**Fair**	C Improve	C/D Improve	D Maintain	D Maintain
	E/F	**Poor**	D Improve	D/E/F Improve	E/F Maintain	E/F Maintain

Table 6.4: Short Term PES and EIS for W52A

			Ecological Importance and Sensitivity (EIS)			
			VH	H	M	L
Present Ecological State (PES)	A	Pristine	A Maintain	A Maintain	A Maintain	A Maintain
	B	Natural	A Improve	A/B Improve	B Maintain	B Maintain
	C	Good	B Improve	B/C Improve	C Maintain	C Maintain
	D	Fair	C Improve	C/D Improve	D Maintain	D Maintain
	E/F	Poor	D Improve	D/E/F Improve	E/F Maintain	E/F Maintain

In the long term, the catchment vision will be based on the current assessment and the future Management Class, as tabulated in Table 6.5 and Table 6.6.

Management measures in the long term have been evaluated as maintain with a vision of a future Management Class III for drainage region W51B and W52A.

Table 6.5: Long Term PES and EIS for W51B

			Ecological Importance and Sensitivity (EIS)			
			I Special Protected	II Protected	III Good Quality	IV Acceptable Quality
Present Ecological State (PES)	A	Pristine	Maintain	Maintain	N/A	N/A
	B	Natural	Maintain	Maintain	Maintain	Sustainable use
	C	Good	Improve	Improve	Maintain	Sustainable use
	D	Fair	Improve	Improve	Improve	Maintain
	E/F	Poor	Improve	Improve	Improve	Improve

Table 6.6: Long Term PES and EIS for W52A

Present Ecological State (PES)			Ecological Importance and Sensitivity (EIS)			
			I Special Protected	II Protected	III Good Quality	IV Acceptable Quality
	A	Pristine	Maintain	Maintain	N/A	N/A
	B	Natural	Maintain	Maintain	Maintain	Sustainable use
	C	Good	Improve	Improve	Maintain	Sustainable use
	D	Fair	Improve	Improve	Improve	Maintain
	E/F	Poor	Improve	Improve	Improve	Improve

The sensitivity of the water resource is based on the management measures that will be employed to affect the catchment vision. This has been tabulated in Table 4.7.

Table 6.7: Sensitivity of the Water Resource

Strategy No.	Strategy for the Water Resource	Sensitivity of the Water Resource
1	Employ management measure with a view to improve the resource class.	High
2	Employ management measure with a view to maintain the resource class as is.	Medium
3	Employ management measure with a view to allow controlled degrade of the water resource	Low

6.6.6 Receiving Water Quality Objectives

There are currently no receiving water quality objectives published for the project's catchment area by the DWS. The last known resource quality objectives relating to Kangra Operations (i.e., Lower Vaal Catchment) to be published was done so in April 2016 (GN 470) It should, however, be noted that no water is discharged to any receiving water resources by the Maquasa mining area. The mine is operating on a closed water circuit.

6.6.7 Surface Water User Survey

The mining area is situated north of the western portion of the Heyshope dam. This dam was established in 1986 and it is used to supply water to surrounding municipalities and industries. Water from the dam is also used to supply Eskom with water for electricity generation.

6.6.8 Sensitive Areas (Wetlands)

The presence of wetlands in the landscape can be linked to the presence of both surface water and perched groundwater. Wetland types are differentiated based on their Hydro-Geomorphic (HGM) characteristics, i.e., on the position of the wetland in the landscape, as well as the way in which water moves into, through and out of the wetland systems. A schematic diagram of how these wetland systems is positioned in the landscape is given in Figure 6.18.

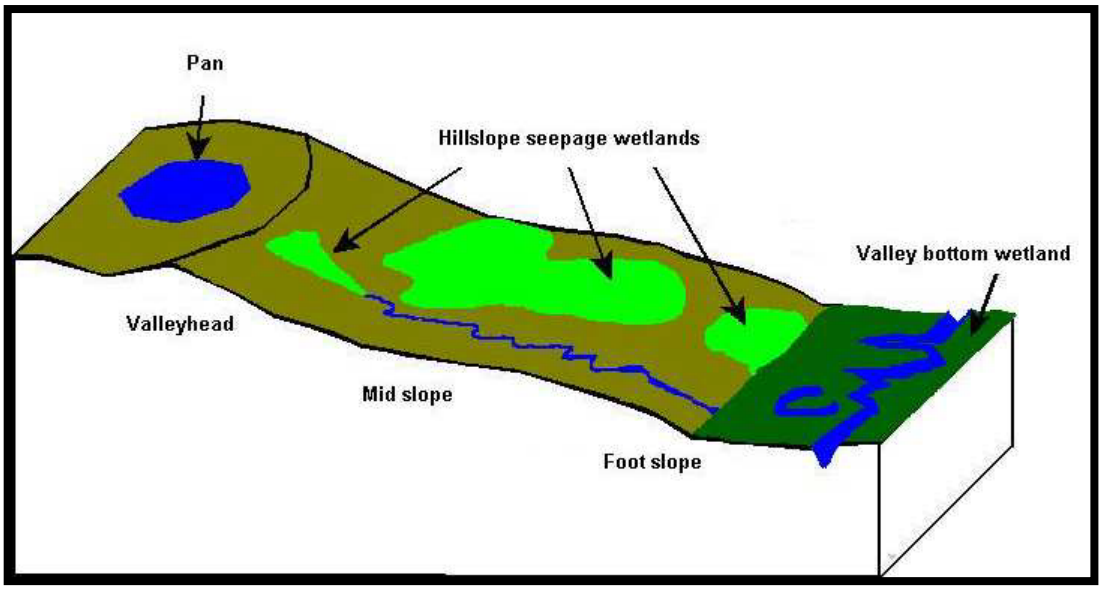


Figure 6.18: Diagram illustrating the position of the various wetland types within the landscape

6.6.8.1 Maquasa East

The wetlands, covering approximately 1 201ha, identified within the footprint of the mining area (approximately 5.738ha) consist of hillslope seepage and valley bottom wetlands. The most important functions supported by the wetlands on site appear to be the provision of high-quality water (hillslope seepage wetlands), augmentation of streamflow (seeps and unchannelled valley bottoms) and biodiversity support (both hillslope seepage wetlands and channelled valley bottoms).

Wetland Classification and Delineation

Three (3) distinct wetland types were identified as being associated with the Maquasa East, namely:

- Channelled Valley Bottom Wetlands;
- Unchannelled Valley Bottom Wetlands; and
- Hillslope Seepage Wetlands.

Most of the hillslope seepage wetlands are, however, expected to be largely seasonal in nature in response to the seasonal rainfall patterns. Most of the valley bottom wetlands are expected to be seasonal in nature.

The remaining valley bottom systems in this Maquasa East area of the study site are unlikely to be directly affected by mining activities. The channelled valley bottom wetlands are deeply incised, while the unchannelled valley bottom systems generally show a shallow, weakly defined channel, if any. The main hydrological drivers of these systems are rainfall, run-off from the surrounding slopes and upstream catchment, and subsurface seepage and surface runoff from the adjoining hillslope seepage wetlands.

6.6.8.2 Maquasa West

Wetland Classification and Delineation

Within the Maquasa West Opencast footprint only two (2) different wetland types were identified, namely:

- Channelled Valley Bottom Wetland; and
- Hillslope Seepage Wetlands.

In addition, some of the surface infrastructure (e.g., access road, and conveyor) also falls within the delineated wetlands on site.

The area consists of a low ridge that drains into several channelled and unchannelled valley bottom system. Each of these valley bottom wetlands supports an associated network of hillslope seepage wetlands. Pit C is situated on an existing disturbance and will not result in an additional direct impact on wetland habitat. The residual impact may be the reduction in water supply to hillslope seeps immediately downstream of the pits as the as parts of the catchment are transformed to excavations.

6.6.8.3 Nooitgesien Expansion

The Nooitgesien section of the mine consists of four (4) opencast pits, namely Pits G, and H and their associated dumps. The area is characterised by several large, channelled valley bottom systems fed by hillslope seepage wetlands. The developments do not encroach directly into the valley bottom systems, but the waste rock dumps and pits G and H are likely to remove a considerable area of seepage wetland from the landscape.

This may result in a reduction in the volume and quality of water entering the valley bottom systems. Pits E and F are situated for the most part outside wetland habitat, although they do serve to remove the catchments from several seepage wetlands, with a likely consequence being their subsequent desiccation.

The conveyor system crosses three (3) hillslope seep wetlands, and three (3) channelled valley bottom systems, although with appropriate design the impacts of these crossings on wetland functioning need not be significant. The conveyor is also potentially a temporary development. The haulage roads cross through several Hillslope seepages, four (4) channelled valley bottom systems and one un-channelled valley bottom system.

6.7 Groundwater

6.7.1 Aquifer Characterization

The following section supplies a brief overview of the aquifer characteristics encountered at the Maquasa (East and West) and Nooitgesien operations, with a specific focus on the aquifer type, aquifer zones, preferential flow paths and groundwater occurrence.

6.7.1.1 Aquifer Type and Aquifer Zones

Based on available data, the aquifer occurring in the area can be divided into three (3) distinct zones:

1. **Alluvium zone:**
    - Alluvial horizons occur along streams and rivers that traverse the area. These water-bearing horizons are generally connected to the streams and rivers and can be connected to deeper lying weathered and fractured water-bearing horizons depending on the nature of the alluvial sediments (ERM, 2013).
2. **Weathered to semi-confined aquifer zone:**
    - The sedimentary rocks of the Ecca Group form the main water-bearing strata. In the Ecca group, multi-layered aquifers are common, especially within the coalfields. It is, however, conceptualised as a single unit with interconnectivity between layers, as a worst-case scenario; and

- On average the saturated thickness of the weathered to semi-confined aquifer zone, determined by boreholes drilled at the site, varies from 5 to 27m. However, on a catchment scale, the average weathered thickness is estimated to be in the order of 16 to 23m (King *et al.*, 1998a; King *et al.*, 1998b; ERM, 2013; GCS, 2013).

3. **Confined fractured aquifer zone:**

- The Dwyka Formation, which underlies the Ecca Group, normally has a very low permeability due to its secondary aquifer characteristics. The aquifer can be referred to as being primarily fractured and acts as an aquitard.
- The fractured aquifer thickness for the general area is estimated to extend from a depth of 23 to 124 mbgl; and is estimated to be in the order of 100 - 130m thick (King *et al.*, 1998; and Lourens, 2013).

From the above mentioned, the aquifer in the area can be referred to as being predominantly intergranular and fractured. These aquifer types generally have very low to medium primary hydraulic conductivity/porosity due to the secondary nature of the aquifer (King *et al.*, 1998). A conceptual drawing of the typical aquifer zones in the study area is presented in Figure 6.19.

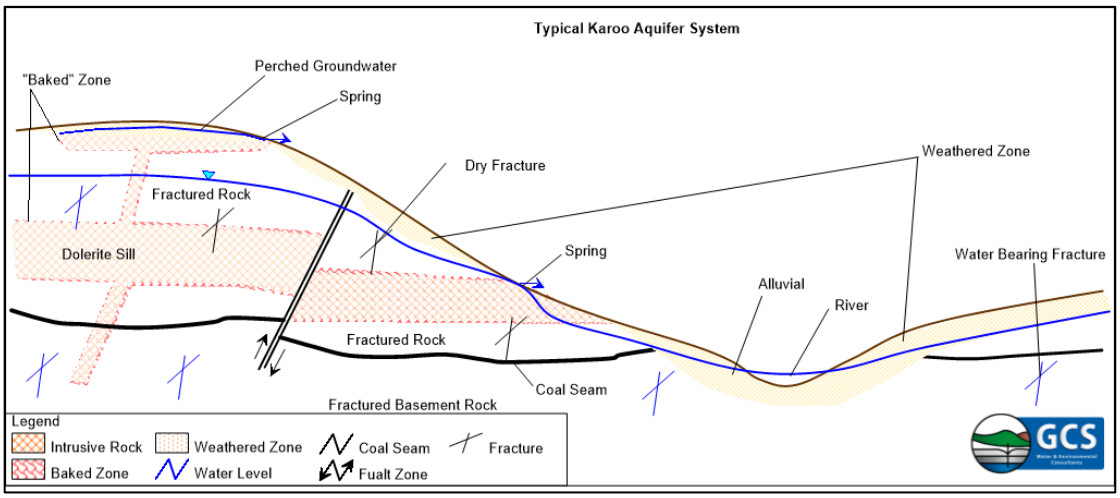


Figure 6.19: Conceptualisation of the study area aquifer zone

6.7.1.2 Preferential Flow Paths

Dolerite intrusions in the form of dykes and sills are common in the Karoo Supergroup and are often encountered in the study area. These intrusions can serve as both aquifers and aquifuges[30].

[30] **Aquifuge:** An impermeable body of rock which contains no interconnected openings or interstices and therefore neither absorbs nor transmits water.

Thick un-weathered dykes will inhibit the flow of water, while the baked and cracked contact zones can be highly conductive. These conductive zones effectively interconnect the strata of the Ecca sediments both vertically and horizontally into a single, but highly heterogeneous and anisotropic zone on the scale of typical mining activity.

Various dolerite dykes and contact zones have been mapped during the course of the underground mining activities in the area. The strike of the dykes in this area are both parallel and perpendicular to the direction of groundwater flow and therefore act as no flow and preferential flow boundaries. It is therefore currently assumed that the different groundwater bearing horizons are interconnected on a regional scale. On a more local scale, the sills can present horizontal barriers to groundwater flow which results in the local development of wetlands and springs.

Furthermore, significant vertical displacement of the coal seams has been observed adjacent to some geological structures in the Project Area, which suggests that faulting has occurred. Significant differences in water levels were observed across some of these faults, which suggest that in places faults act as barriers to groundwater flow, creating separate groundwater compartments (ERM, 2013).

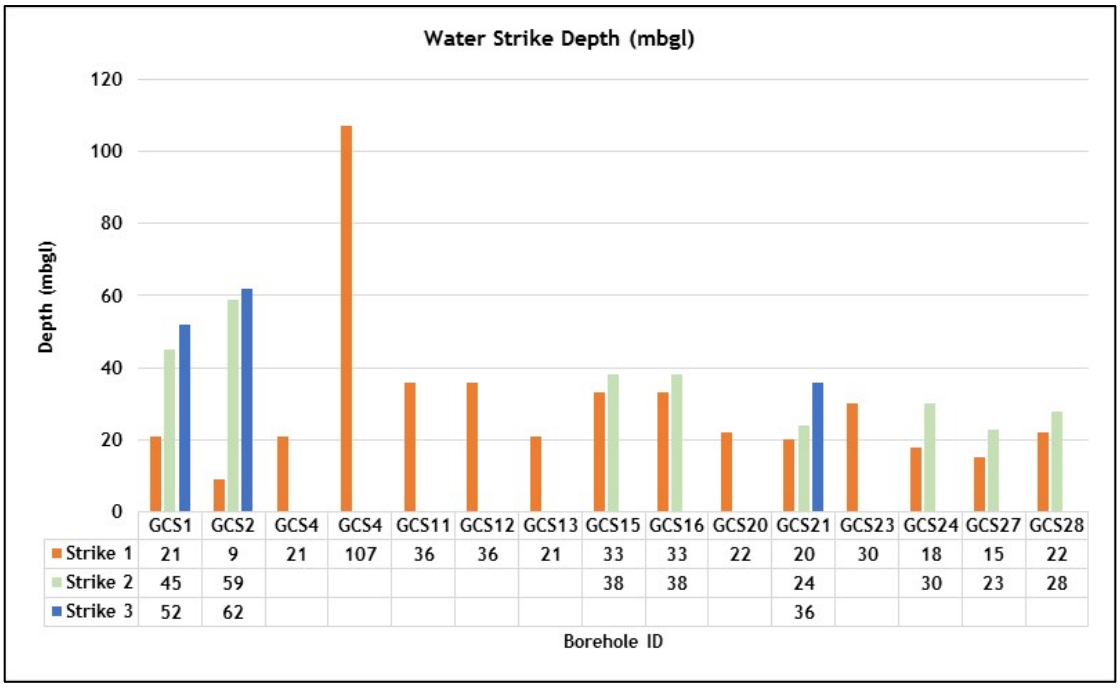
6.7.1.3 Primary Groundwater Occurrence

According to literature for the region (King *et al.*, 1998), groundwater is typically encountered in/along:

- Dolerite dyke and sill contacts with host rock;
- Contact zones between lithologies or unconformities; and
- Faults and associated fracture zones.

Based on borehole logs drilled in 2013 by GCS (GCS, 2013), it is clear that groundwater in the local area is typically encountered within contact zones between lithologies or unconformities.

Figure 6.20 plots available water strike data for boreholes previously drilled by GCS with hydrogeological data recorded. The 1st water strike generally occurs at a depth in the order of 29mbgl, with the exception of borehole GCS4. The 2nd water strike generally occurs at a depth in the order of 35mbgl and the 3rd water strike at depths > 50mbgl. Irrespective of the borehole depth, water strikes generally occurred along sandstone/siltstone (shale) contacts as well as dolerite contacts with the host rocks.



	GCS1	GCS2	GCS4	GCS4	GCS11	GCS12	GCS13	GCS15	GCS16	GCS20	GCS21	GCS23	GCS24	GCS27	GCS28
Strike 1	21	9	21	107	36	36	21	33	33	22	20	30	18	15	22
Strike 2	45	59						38	38		24		30	23	28
Strike 3	52	62									36				

Figure 6.20: Borehole water strike depths

6.7.2 Groundwater Quality

The groundwater quality results were obtained from the *Water Quality Monitoring Report for the Kangra Coal Maquasa East, Maquasa West & Nooitgesien Operations: Third Quarter, 2022 Monitoring Period'* (Annexure A).

6.7.2.1 Maquasa West and Nooitgesien

The following observations were made during the 2022 third quarter monitoring event:

- Borehole GCS20 indicated slightly acidic pH levels (5.8) whilst the remaining boreholes indicated neutral to slightly alkaline pH levels (6.5 to 8.2); refer to Figure 6.21.
    - The pH levels at borehole GC19 (8.2) and GCS20 (5.8) were non-compliant with the WUL limits; the remaining boreholes were compliant.
- Boreholes GCS18, GCS19, GCS20 and GCS21 showed low to no significant impact from the site, based on typical mine indicator parameters.
    - Elevated EC, TDS, total alkalinity, sodium and fluoride concentrations exceeded the WUL limits at GCS21.
    - Nitrate concentrations (<0.8 mg/l) slightly exceeded the WUL limit at GCS18, GCS 19 and GCS20.

- The water quality at boreholes GCS22, GCS23 and GCS24 located down-gradient of the NS mine workings, was non-compliant when compared to the WUL limits.
    - EC, TDS, total hardness, calcium, magnesium and potassium concentrations were elevated above the WUL limits at all three (3) boreholes. Additionally, sodium was in exceedance at GCS22 and GCS24. TDS ranged between 840 mg/l (GCS23) and 2 000 mg/l (GCS24); refer to Figure 6.22.
    - All three (3) boreholes are characterized by fluctuating sulphate concentrations, which exceed the WUL limit, ranging between 548 mg/l (GCS23) and 1 960 mg/l (GCS24) in October 2022 (Figure 4.21). The water quality at GCS22 and GCS24 has deteriorated since 2020. Borehole GCS23 indicated an initial improvement in water quality between 2019 and 2021, however subsequent data indicates deteriorating water quality.
    - Additionally, nitrate concentrations exceeded the WUL limit at all three (3) boreholes ranging between 0.6 mg/l (GCS24) and 1.9 mg/l (GCS22), in October 2022.
    - In terms of metal concentrations, manganese was elevated at all three (3) boreholes, ranging between 1.0 mg/l (GCS23) and 15.0 mg/l (GCS24) in October 2022.
- Borehole GCS24 is located adjacent to the NS opencast workings. Water level data for this borehole shows rebounding water levels following a period of drawdown at the opencast workings. As such, the groundwater flow path is now moving away from the opencast workings and the data shows that the Zone of Impact (ZOI) has been intersected by GCS22, GCS23 and GCS24.

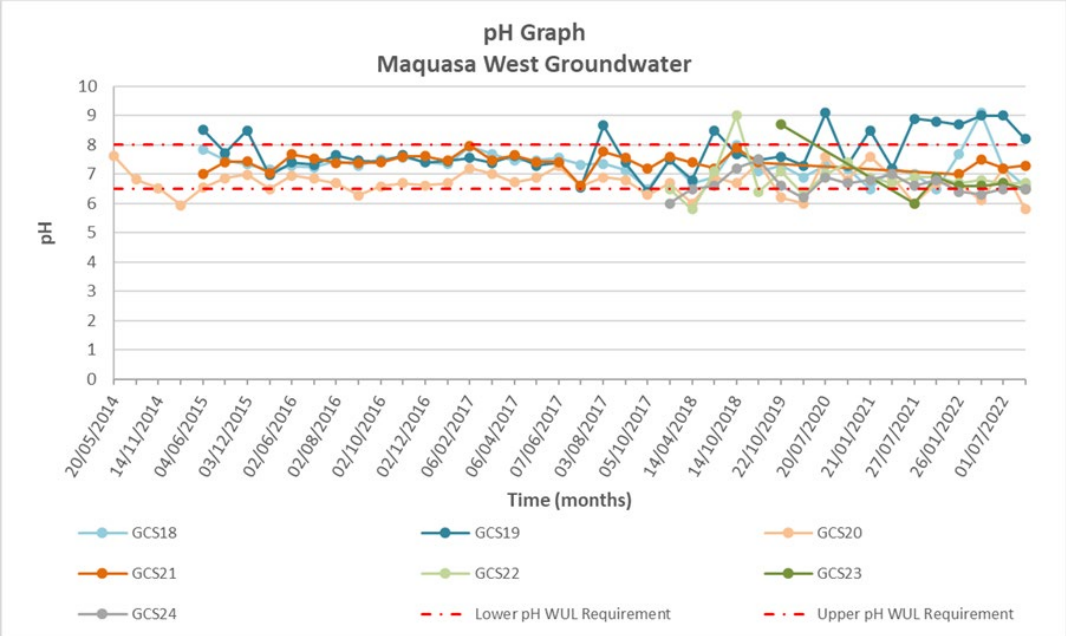


Figure 6.21: Maquasa West groundwater pH graph

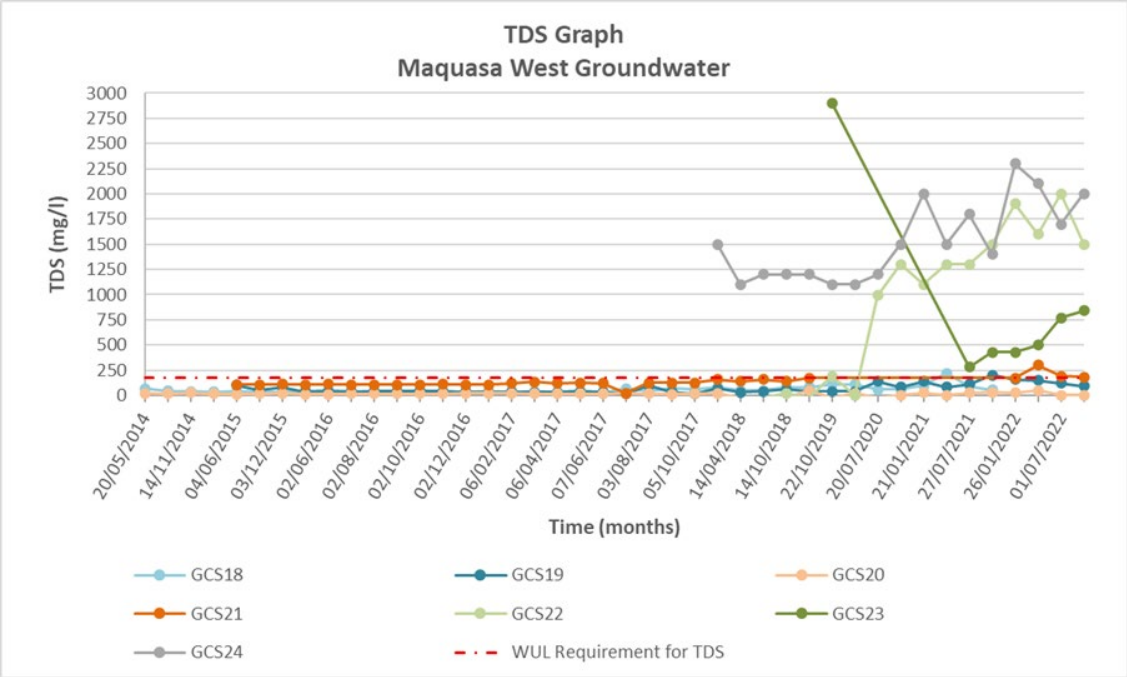


Figure 6.22: Maquasa West groundwater TDS graph

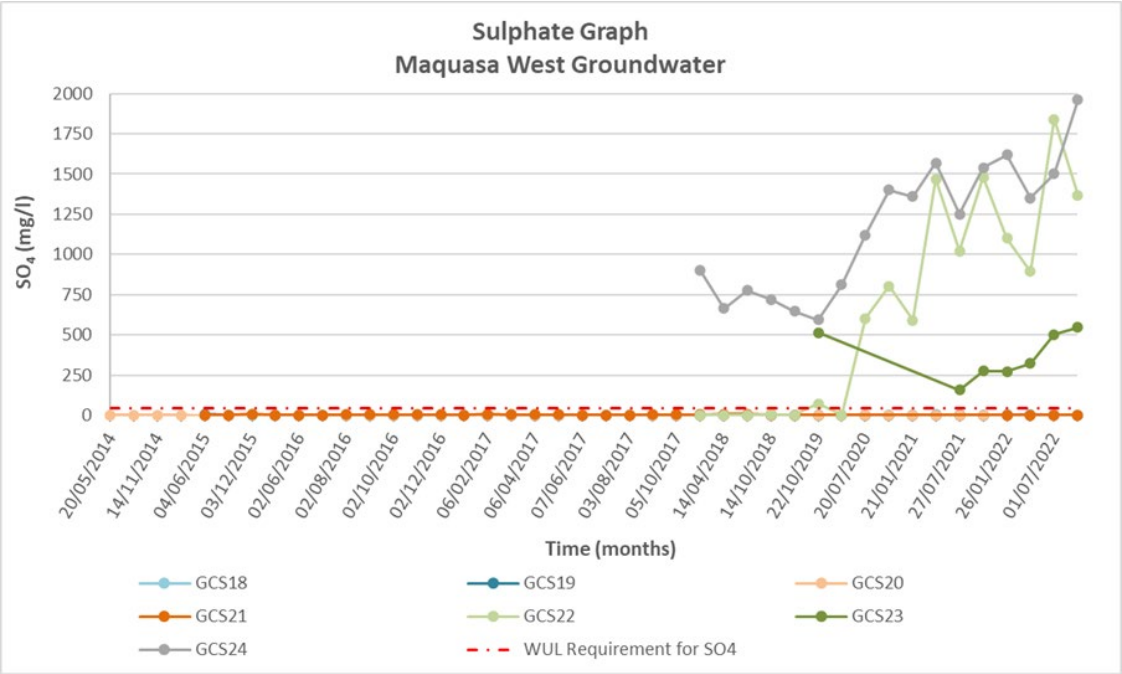


Figure 6.23: Maquasa West groundwater sulphate graph

6.7.2.2 Maquasa East

Borehole BCBH02 is buried. Four (4) new boreholes (GCS28, MON BH03, MON BH04 and MON BH05) were added and one borehole (Well Yende Family) was removed from the groundwater monitoring network in September 2022.

The following observations were made during the 2022 third quarter monitoring event:

- All groundwater monitoring points exhibited neutral pH conditions, ranging between 6.5 and 7.9; refer to Figure 6.24.
- Boreholes Well Yende, BH 923, BCBH01, GCS11, GCS12, GCS13, GCS14, GCS15, MON BH04 and MON BH05 showed low to no significant impact from the site in the third quarter of 2022.
    - Slight exceedances of the WUL Limits were observed, including chloride at Well Yende, fluoride at BCBH01, potassium, chloride and fluoride at MON BH04 and sodium at MON BH05.
    - Additionally, nitrate was elevated at most points, ranging between 0.3 and 6.9 mg/l.
- The water quality at KGA1, KGA2, GCS16, GCS17, GCS28 and MON BH03 was non-compliant when compared to the WUL limits.
    - Several parameter concentrations exceeded the WUL Limits in October 2022:

- EC, TDS, calcium, magnesium, sodium, potassium, total alkalinity, chloride and total hardness were elevated at GCS16. GCS16 indicated the most impacted water quality, with TDS recorded as 1 400 mg/l.
- EC, TDS, magnesium, sodium, potassium and chloride were elevated at KGA1.
- Potassium and nitrate were elevated at KGA2.
- EC, TDS, sodium, total alkalinity, chloride and fluoride were elevated at GCS17.
- EC, TDS, calcium, magnesium, potassium and total hardness were elevated at GCS28.
- EC, TDS, calcium, magnesium, sodium, potassium, total alkalinity, fluoride and total hardness were elevated at MON BH03.

o Sulphate concentrations varied at the site; refer to Figure 6.25.

- Sulphate at GCS16 has displayed a stable trend over time, consistently exceeding the WUL limit, recorded as 764 mg/l in October 2022. GCS16 is decanting directly from the underground workings at MQE into a PCD, situated in close proximity to the Heyshope Dam.
- Sulphate at KGA1 and KGA2 have displayed an increasing trend over time, currently exceeding the WUL limit, recorded as 300 and 73 mg/l respectively in October 2022. KGA1 is situated downgradient of the Discard Plant and KGA2 is situated downgradient of both the discard dump and the underground workings at MQE.
- Sulphate was also elevated at GCS28 (240 mg/l) and MON BH03 (93 mg/l) in October 2022. Future monitoring will confirm the trends.

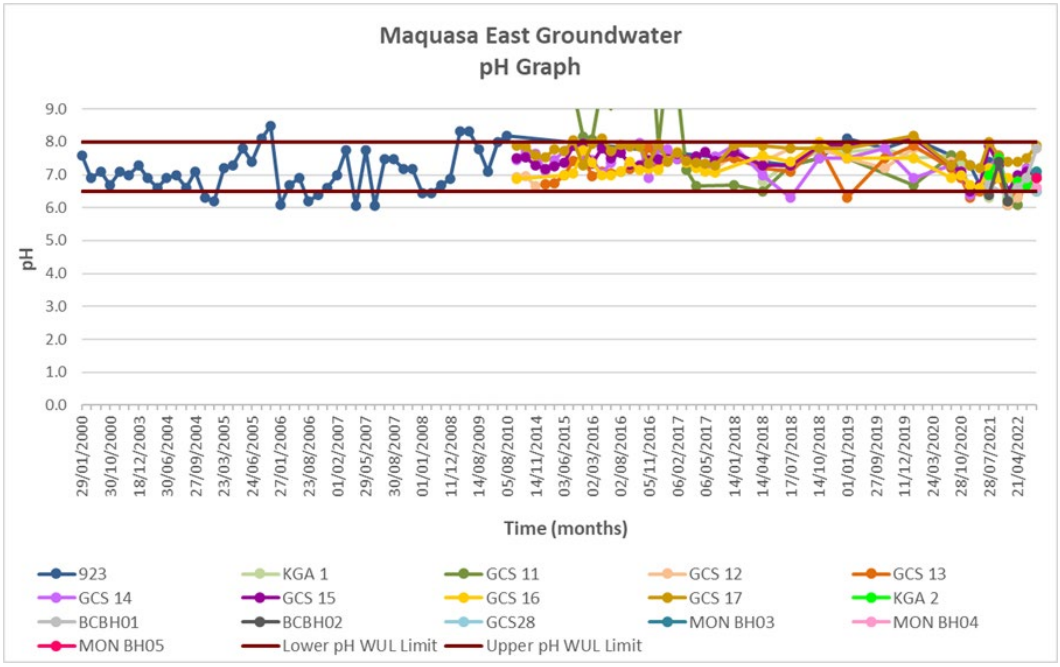


Figure 6.24: Maquasa East groundwater pH graph

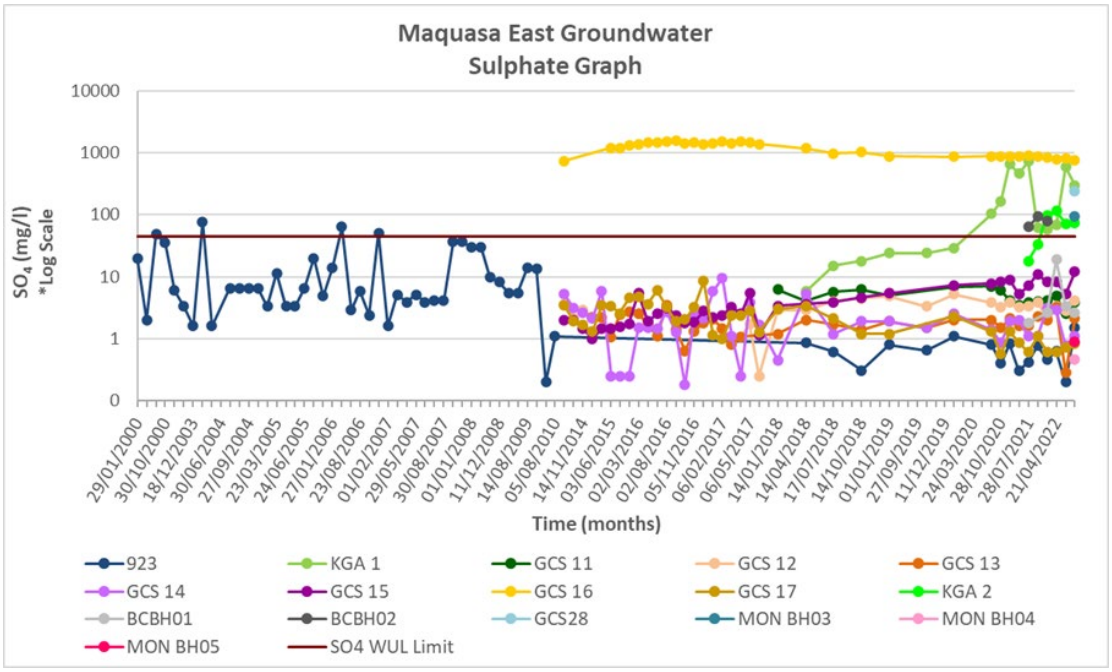


Figure 6.25: Maquasa East logarithmic groundwater sulphate graph

6.7.3 Hydrocensus

Given that groundwater flow direction generally follows the surface topography of the area; the hydrocensus survey focused more on eight (8) opencast pits. Although no real groundwater users could have been identified within the study area, this survey focused on measuring water levels in open geological exploration boreholes.

To identify the depth of groundwater and identify the groundwater users, a census of all groundwater abstraction points was conducted within and surrounding the mining area. The survey of boreholes and springs was undertaken during site investigation before the rain season.

The survey of boreholes and springs was aimed at identifying existing users, depth to water levels, depth of boreholes, and the ambient groundwater quality. This included all the springs and boreholes in a search area of 1 500ha. A field investigation was undertaken to establish the occurrence/location of existing boreholes within the study area. No boreholes which are used for water supply were found during the survey. Only one spring, which was used by the local community, was identified (Spring 4). Water levels were also measured in the newly drilled hydro-exploration boreholes (GCS 11 - GCS 30), open uncased exploration boreholes (A – AAZ, BHM 1&3), and existing monitoring boreholes (GCS 1 & 2).

6.7.4 Potential Pollution Source Identification

Based on monitoring data and the current mining infrastructure plan, the following main point sources have been identified at the mine:

- The old Maquasa East workings (presumed to be partially flooded);
- The rehabilitated and un-rehabilitated opencast workings;
- The overburden dumps surrounding the adits;
- Discard dump and Slurry Ponds;
- Pollution Control Dams (PCDs);
- The Maquasa West underground workings (now inactive);
- The Nooitgesien opencast workings;
- Beneficiation and coal stockpile areas; and
- Workshops.

Moreover, dewatering can be considered a point source, in terms of a decline in groundwater and surface water quantity. Dewatering is likely to impact stream and spring flow, especially in low topographical areas which are sustained by groundwater baseflow from higher lying areas [i.e., dewatering of an aquifer zone situated above an aquiclude will cause a spring to stop flowing (refer to Section 6.7.1). However, the above-mentioned stream reduction has not yet been observed or reported at the Maquasa or Nooitgesien operations.

6.7.5 Groundwater Model

This section supplies an overview of the hydrogeological conceptual model used to develop the numerical groundwater flow and transport model. The numerical groundwater flow model is constructed and simulated to aid in decision making processes and environmental management.

The groundwater regime of the study area is highly heterogeneous due to complex faulting and intrusions, which ultimately influence the groundwater flow patterns. Constructing a groundwater flow model with all the detail is close to impossible; however, assumptions are made based on data gathered and used to simulate different scenarios to conclude with management protocol.

6.7.5.1 Software Model Choice

The finite difference numerical model was created using AquaVeo's Groundwater Modelling System (GMS10) as Graphical User Interface (GUI) for the well-established Modflow and MT3DMS numerical codes.

MODFLOW is a 3D, cell-centred, finite difference, saturated flow model developed by the United States Geological Survey. MODFLOW can perform both steady state and transient analyses and has a wide variety of boundary conditions and input options. It was developed by McDonald and Harbaugh of the US Geological Survey in 1984 and underwent eight (8) overall updates since. The latest update (Modflow-NWT) incorporates several improvements extending its capabilities considerably, the most important being the introduction of the Newton formulation of Modflow. This dramatically improved the handling of dry cells that has been a problematic issue in Modflow in the past.

MT3DMS is a 3-D model for the simulation of advection, dispersion, and chemical reactions of dissolved constituents in groundwater systems. MT3DMS uses a modular structure similar to the structure utilized by MODFLOW and is used in conjunction with MODFLOW in a two-step flow and transport simulation. Heads are computed by MODFLOW during the flow simulation and utilized by MT3DMS as the flow field for the transport portion of the simulation.

6.7.5.2 Model Set-up and Boundaries

Boundaries were chosen to include the area where the groundwater pollution plume could reasonably be expected to spread and simultaneously be far enough removed from site boundaries not to be affected by groundwater abstraction. Although the most relevant aquifer parameters are optimised by the calibration of the model, many parameters are calculated and/or judged by conventional means. The fixed assumptions and input parameters were used for the numerical model of this area (**Table 6.8**).

Table 6.8: Input parameters to the numerical flow model

Model Parameter	Value	Unit	Reason
Recharge of the aquifer	0.00008	m/d	Previous hydrogeological report (Gradient Groundwater Consulting report HG-R-19-012)
Evapotranspiration	0.01	m/d	Calculated
Boundaries	Topographic water divides	-	No flow boundaries
Refinements	75	m	Smaller than the scale of mining areas
Grid dimensions	330 x 270	Cell count	Product of the grid refinement
Hydraulic Conductivity	0.05	m/d	Previous hydrogeological report (Gradient Groundwater Consulting report HG-R-19-012)
Hydraulic conductivity (Vertical)	10	-	Anderson et al. (2015)
Effective porosity	5 declining to 3 with depth in each layer	%	Wang et al. (2009)
Layers	4	Count	Mining depth is 20m
Longitudinal dispersion	50	m	Schulze-Makuch (2005)
Head error range	10	m	Calculated as 5% of the difference between the maximum and minimum calculated head elevations

6.7.5.3 Groundwater Elevation and Gradient

The calibrated static water levels as modelled have been contoured (Figure 6.27). Groundwater flow direction should be perpendicular to these contours and inversely proportional to the distance between contours. As can be expected, the groundwater flow is mainly from topographical high to low areas, eventually draining to the local streams.

6.7.5.4 Geometric Structure of the Model

The geometric structure of the model is discussed in Appendix G of Annexure B, with only the conceptual model input and fixed aquifer parameters discussed below.

6.7.5.5 Groundwater Source and Sinks

Although the most relevant aquifer parameters are optimised by the calibration of the model, many parameters are calculated and/or judged by conventional means. The fixed assumptions and input parameters were used for the numerical model of this area.

6.7.5.6 Groundwater Conceptual Model Input

To this study, the subsurface was envisaged to consist of the following hydrogeological units:

- The upper few metres below surface consist of completely weathered material. This layer is anticipated to have a reasonable high hydraulic conductivity, but in general unsaturated. However, a seasonal aquifer perched on the bedrock probably does form in this layer, especially after high rainfall events. Flow in this perched aquifer is expected to follow the surface contours closely and emerge as fountains or seepage at lower elevations.
- The next few tens of metres comprise of slightly weathered, highly fractured bedrock with a lower hydraulic conductivity. The permanent groundwater level resides in this unit and is about 1 to 20 metres below ground level. The groundwater flow direction in this unit is influenced by regional topography and for the site flow would be in general from high lying areas to the local streams.
- Below a few tens of metres, the fracturing of the aquifer is less frequent and fractures less significant due to increased pressure. This results in an aquifer of lower hydraulic conductivity and very slow groundwater flow velocities. The flow direction is expected to be mostly easterly. This trend was confirmed by modelling.

6.7.5.7 Groundwater Numerical Model

Water level and quality data obtained during the hydrocensus was used to calibrate the steady state numerical groundwater flow model. The results obtained during the steady state scenarios were used as initial conditions to simulate dewatering and contaminant transport impacts. A good fit was obtained for the measured groundwater levels and concentrations (Figure 6.26).

All other parameters were unchanged, with values as listed in the paragraphs above (Figure 6.27). The calibration error statistics can be seen in Table 6.9 and Table 6.10. The head error was below 1m, which can be regarded as good, especially given the steep topography and groundwater levels.

Table 6.9: Optimal Calibrated Aquifer Parameters

Aquifer	Model layer	Layer thickness (m)	Porosity (%)	Hydraulic conductivity (m/d)
Upper regolith aquifer	Layer 1	10	20	0.5
Highly fractured bedrock	Layer 2	40	5	0.05
Moderately fractured bedrock	Layer 3	50	4	0.005
Slightly fractured bedrock	Layer 4	250	3	0.0005

Table 6.10: Calibration Statistics

Description	Value
Mean Residual (Head)	0.62
Mean Absolute Residual (Head)	8.36
Root Mean Squared Residual (Head)	12.82

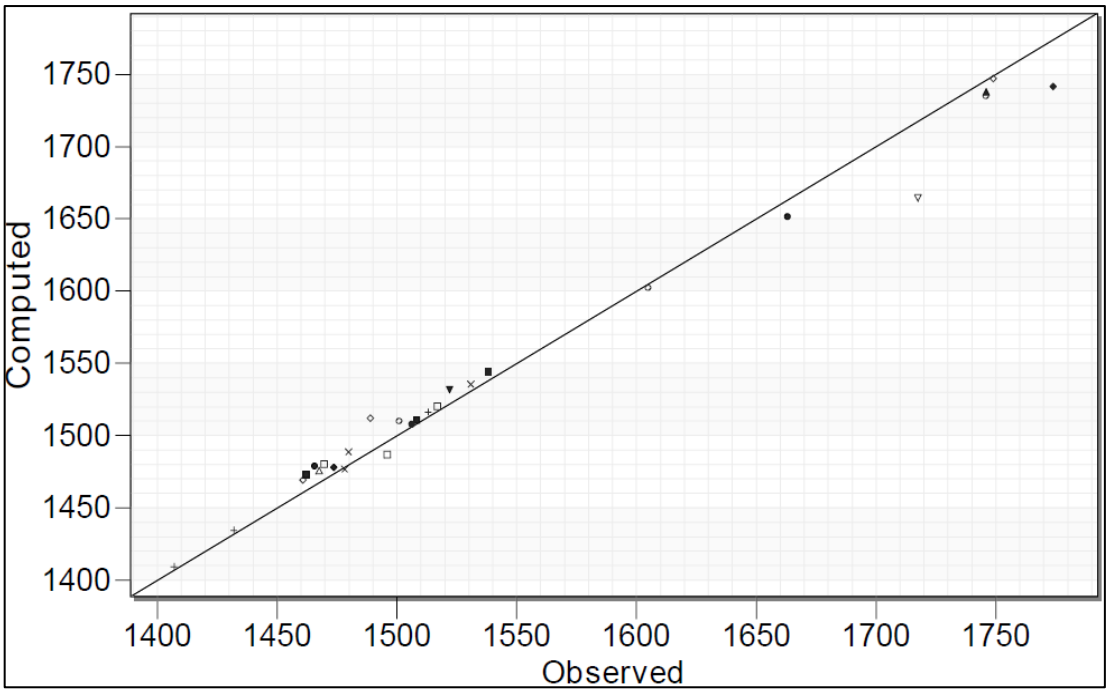


Figure 6.26: Computed vs. Observed Groundwater Levels (mamsl) (Geo Pollution Technologies, 2021)

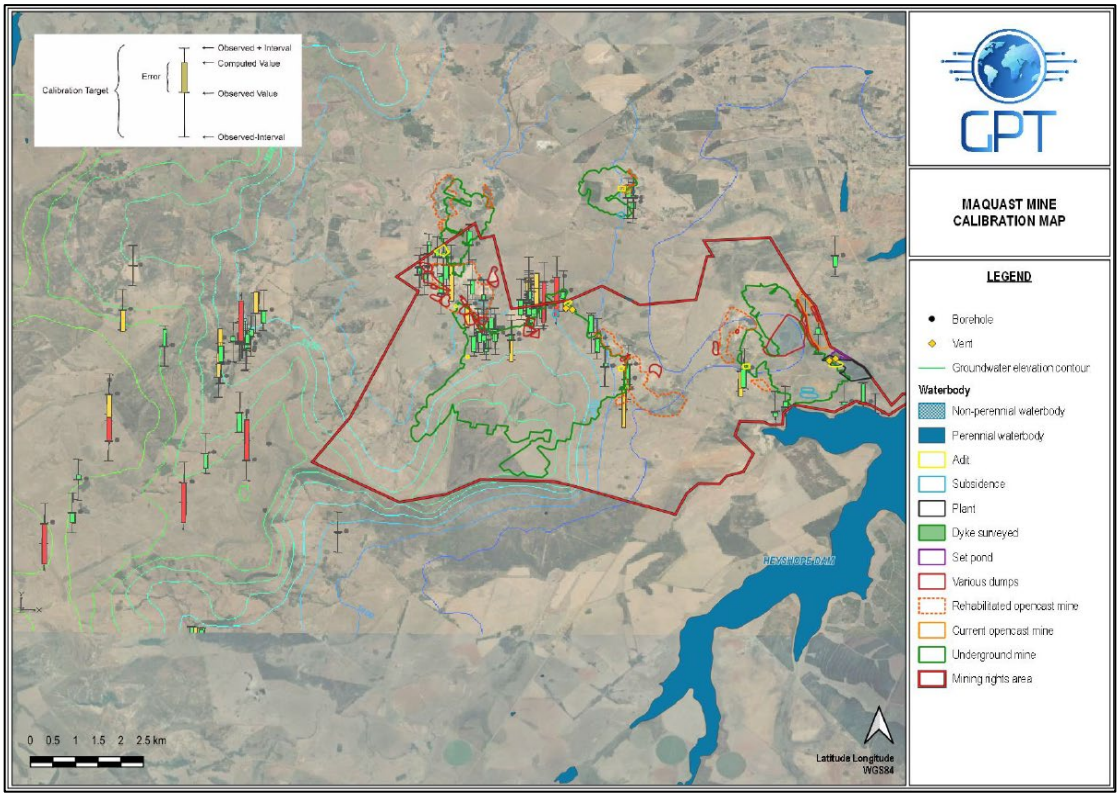


Figure 6.27: Calibration of the Numerical Model (10m head interval) (Geo Pollution Technologies, 2021)

Groundwater flow models are inherently simplified mathematical representations of complex aquifer systems. The simplification limits the accuracy with which groundwater systems can be simulated in general. There are numerous sources of error and uncertainty in groundwater flow models. Model error commonly stems from practical limitations of grid spacing, time discretisation, parameter structure, insufficient calibration data, and the effects of processes not simulated by the model. These factors, alongside unavoidable error in field observations and measurements, result in uncertainty in the model predictions.

The complexities of fractured rock aquifers imply that the model can only be used as a guide to determine the order of magnitude of dewatering and contaminant transport. The interpretation of modelled results should be based on the assumptions the model was built on and actual results will vary as unknown aquifer conditions and parameters vary in the natural system.

6.8 Air Quality

The proposed Project is located within a landscape comprising of natural vegetation and small patches of cultivated fields. The main sources of air pollutants include:

- Emissions from vehicles, i.e., mine trucks and vehicles travelling along nearby main roads; and
- Dust created from conveyors, RoM stockpiles, opencast pits and the coal washing plant.

6.9 Noise

Most of the noise within the project area is expected to emanate from the current mining operations at Maquasa East and West.

6.10 Heritage and Archaeology

A Phase 1 Heritage Impact Assessment was undertaken by Dr Julius C.C. Pistorius in 2012 in respect of the mining expansion project. No sites of heritage or archaeological significance were identified within or within the immediate vicinity of the proposed new Discard Dump area. No further cultural, heritage or archaeological studies are considered necessary for the project area.

6.11 Socio Economic Environment

6.11.1 Regional Context

Kangra is located within the Mpumalanga Province, Gert Sibande District Municipality (DM), Mkhondo Local Municipality (LM) and Dr Pixley Isaka Ka Seme LM. Mpumalanga literally means "the place where the sun rises". Mpumalanga lies in eastern South Africa, north of KwaZulu-Natal and borders Swaziland and Mozambique. In the north it borders on the Limpopo Province, while to the west it borders on the Gauteng Province, to the southwest it borders on the Free State Province and to the south the KwaZulu-Natal Province. The capital of the province is Mbombela (previously known as Nelspruit).

Mpumalanga Province is divided into three (3) District Municipalities (DM), which are further subdivided into 17 Local Municipalities (LM). The DMs for the Mpumalanga Province are provided below:

- **Gert Sibande DM;**
- Nkangala DM; and
- Ehlanzeni DM.

The Gert Sibande DM is divided into the following LM:

- Chief Albert Luthuli Local Municipality;
- Msukaligwa Local Municipality;
- **Mkhondo Local Municipality;**
- **Dr. Pixley Isaka Ka Seme Local Municipality;**
- Lekwa Local Municipality;
- Dipaleseng Local Municipality; and
- Govan Mbeki Local Municipality.

6.11.2 Local Context

The following information has been sourced from the Gert Sibande District Municipality Amended Integrated Development Plan 2021-2022 and the Statistics South Africa 2016 Census Data.

6.11.2.1 Demographic profile

Population and household profile:

That the population size (persons) for the Mkhondo LM increased by 2.1% over the 2011 to 2016 time period, whereas the Dr. Pixley Ka Isaka Seme LM had a growth of 0.6% over the same period. The Gert Sibande DM only saw a slight increase (1.9%) in population size

between 2011 and 2016. Households have grown over the 2011 to 2016 time period, with the Gert Sibande DM experiencing an increase of 18.07%.

Population group

The Mkhondo LM population are composed of mostly Black African persons (98%) followed by 1% White persons. The Dr Pixley Ka Isaka Seme LM population has a similar composition with 92.1% Black African persons followed by 6.7% White persons The Gert Sibande DM shows a 91.6% Black African population with a larger percentage of White persons (6.8%) (Statistics SA, 2016).

6.11.2.2 Economic Profile

This section provides a delineation of the study area and a brief economic status quo pertaining to employment and labour profile.

Employment and labour profile

The employment status of the population has a variety of important implications. Economically active and employed persons can contribute to the overall welfare of a specific community by paying their taxes, looking after the youth and aged and by stimulating the economy. However, should a community have a large number of economically inactive and / or unemployed persons, the burden on the economically active population of that community are amplified.

Gert Sibande's unemployment rate was the lowest among all the districts in Mpumalanga (28.7%). In 2019 the youth unemployment rate was at 58.0% with a very high youth unemployment rate of females (68.5%). The job loss estimates in 2020, due to the COVID-19 lockdown, were between 30 000 and 39 000 with the & the unemployment rate (strict definition) to increase to between 35.3% and 37.4%. In 2019, the Mokhondo LM had an unemployment rate of 32.3% (20 075 people) and the Dr Pixley Ka Isaka Seme LM had 37.5% unemployment rate (10 215 people).

In 2019, Trade (23.2%), Community Service (18.3%) and Finance (12.9%) were the top three (3) leading industries in terms of providing employment in the Gert Sibande DM. However, the largest industries in the Gert Sibande DM are Mining, Manufacturing, Community Services and Trade.

Mkhondo LM's top three (3) industry sectors are Agriculture (25.2%), Trade (15.8%) and Transport (14.5%). Dr Pixley Isaka Ka SemeLM's top 3 industry sectors are Utilities (12.2%), Construction (11.5%), and Agriculture (7.5%)

Water and sanitation

In the Gert Sibande DM, 81.3% of people have access to safe drinking water with 87.2% of Dr Pixley Ka Isaka Seme LM and 85.4% of Mkhondo LM residents having access to safe drinking

water. The top three (3) main sources of water for drinking in both Gert Sibande DM and Mkhondo LM were piped tap water (inside yard), followed by piped tap water (inside dwelling) and finally flowing water/stream. Whereas Dr Pixley Ka Isaka Seme LM's top three (3) main sources for drinking water were piped tap water (inside yard), followed by piped tap water (inside dwelling) and finally boreholes.

The majority of residents in the Gert Sibande DM (97.38%) have access to some type of toilet facility. The main toilet facility access is via flush toilets connected to public sewage systems (67.14%), followed by pit toilets with a ventilation pipe (11.8%) and pit toilets without a ventilation pipe (11.08%). However, 2.62% do not have access to any type of toilet facility. In the Mokhondo LM, 95.69% of residents have access to toilet facilities. The main toilet facility access is via flush toilets connected to public sewage systems (42.78%), followed by pit toilets without ventilation (32.27%) and ecological toilets (9.8%). In the Dr Pixley Ka Isaka Seme LM, 95.75% of residents have access to toilet facilities. The main toilet facility access is via flush toilets connected too public sewage systems (64.8%), followed by pit toilets with a ventilation pipe (16.01%) and pit toilets without a ventilation pipe (8.64%).

7 PUBLIC PARTICIPATION PROCESS

The PPP is a legislated requirement under NEMA for EA and WML applications. This section of the report documents the process, which was and will be followed with respect to consultation of Interested and Affected Parties (I&APs)/stakeholders and government authorities.

7.1 Purpose of Public Participation

The most important objective of PPP is to provide sufficient and accessible information to potential I&APs in an objective manner and a platform for constructive participation in the EA Application, thereby assisting I&APs to:

- Gain an understanding of the Proposed Project, the various components and the potential impacts (positive and negative);
- Raise issues of concern and suggestions for enhanced benefits;
- Verify that their issues have been recorded in the Comments and Responses Report (CRR) and considered in investigations; and
- Contribute relevant local information and traditional knowledge to the process.

7.2 Public Consultation Process

This section provides a summary of the various activities of the public consultation process to be undertaken in support of the application process.

7.2.1 Stakeholder database

A stakeholder database or list of I&APs was compiled and will be updated during the PPP and as more I&APs registered. The database was compiled by:

a) using lists of contact details of I&APs from previous environmental applications for MQE;
b) using information provided by the applicant's community liaison officers; and
c) including responses from I&APs.

The I&AP database will be used to convey information to stakeholders as part of the announcement of the S&EIR Application; the opportunity for I&AP consultation and the availability of the draft and final S&EIR Reports as these became available for public review. For the Proposed Projects, I&APs included the following:

- Owners of the land where the Proposed Projects is to be undertaken (Project Area) other than Maquasa Mine (Kangra (Pty) Ltd);
- Owners and occupiers of land adjacent to the Project Area;
- Provincial (Mpumalanga) and local government;

- Organs of state, other than the competent authority (CA) having jurisdiction over any aspect of the proposed activities, including the DWS, Mpumalanga Department of Economic Development, Environment and Tourism (MDEDET), etc.
- Relevant residents' associations, agricultural unions, community-based organisations, water user associations, and any catchment management authority and Non-Governmental Organisation (NGOs);
- Environmental organisations, forums, groups and associations; and
- Private sector organisations (businesses, industries) in the vicinity.

7.2.2 Preapplication and Announcement of the application process

A preapplication consultation process was undertaken, whereby the I&APs were provided to opportunity to register for the proposed project. The integrated application process was announced to I&APs by means of the following:

- An advertisement was placed in the Excelsior News on the 27th of January 2023;
- Site Notices were placed all around the project area;
- The I&AP had 14-days to register their interest in the project.

This task was undertaken to ensure that the I&AP database have current participants interested or affected by the proposed project, registered as I&APs. No response has however been received on this notification campaign.

7.2.3 Public Review of Draft Scoping Report

The continuation of the integrated application process, the commencement of the Scoping Phase, and the availability of the Draft Scoping Report (DSR) was announced to I&APs by means of the following:

- An advertisement was placed in the Excelsior News on the 24th of November 2023;
- A Background Information Document (BID) was compiled and distributed to all I&APs on the stakeholder database and copies are available on request;
- Site Notices were placed all around the project area;
- Placement of copies of the notification documentation and the BIDs on the GCS website (https://www.gcs-sa.biz/public-documents/). The GCS website is used to make documents electronically available to stakeholders. The website address was published in the advertisement, BIDs, site notices and all other communication; and
- A Registration and Comment Sheet was distributed with every BID, inviting stakeholders to register as I&APs and to provide their comments on the proposed application.
- The I&AP had 30-days to register, however according to NEMA the process only ends after the submission of the final EIA report to the CA, therefore, registration and comment remains open.

The DSR will be made available for public comment for 30 days. The DSR has been submitted for public review from 24 November 2023 until 16 January 2024 (30 days). The DSR is available for review at the following public venues:

- Piet Retief Library, 10B Retief Street
- Maquasa East Security Office, Maquasa East Mine
- Thusong Service Centre, Driefontein Community

The Report is also available electronically via the GCS Website (link provided above) or a CD/USB was available upon request.

Any comments on the DSR must be submitted in writing or email (including any additional supporting material) on or before **16 January 2024** directly to GCS Water and Environment (Pty) Ltd by means of the following:

Attention: Gerda Bothma
Tel: 011 803 5726
E-mail: gerdab@gcs-sa.biz

PO Box 2597
Rivonia
Johannesburg
2128

7.2.4 Comments and Response Report

All comments received during the application process will be captured in a Comments and Responses (CRR). The CRR will be updated on a continuous basis and will be presented to the authorities and other I&APs together with the consultation and final reports as a full record of issues raised, including responses on how the issues were considered during the application process.

8 PLAN OF STUDY FOR EIA

The Plan of Study (POS) for the Impact Assessment Phase describes the approach to the Assessment, as required in terms of Section 2(1)(h) of Appendix 2 to Regulation GNR 326 promulgated in terms of the NEMA. In accordance with Section 2(1)(h) of Appendix 2, this POS includes:

- A description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity.
- A description of the aspects to be assessed as part of the EIA and by specialists.
- 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.
- An indication of the stages at which the CA will be consulted.
- Particulars of the PPP that will be conducted during the EIA process.
- A description of the tasks that will be undertaken as part of the EIA process.
- 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.

8.1 Impact Assessment Phase Tasks

The objectives of the EIA Phase are to:

- Address the issues and concerns expressed by the environmental authorities and I&APs in the response to the Scoping Study.
- Assess the potential significant impacts imposed by the proposed development and assess alternatives and mitigation measures to minimise potential impacts.
- Assess layout and design alternatives to minimise potential impacts.
- Document findings into an Environmental Impact Assessment Report (EIR), to inform the authorities and the I&APs with regard to issuing an EA.

The following tasks are required to be undertaken during the EIA process:

- Appoint specialists to undertake further specialist investigations, if required.
- Review of the specialist reports and amendment where necessary.
- Discuss the specialist report results and conclusions with I&APs and authorities.
- Incorporate the assessments in the DEIR.
- Distribute the Draft EIR (DEIR) to I&APs and authorities for review.
- Convene Focus Group/Public Meeting(s), as appropriate.
- Collate and address any comments/concerns documented by I&APs.
- Incorporate issues and responses into the Final EIR (FEIR).
- Submit the FEIR to the CA for consideration.

- Inform I&APs of the submission of the FEIR to the CA and make copies available for review.

The EIA process involves the compilation of an EIR that provides a formal assessment of the significance of all the potential impacts identified for assessment in the Scoping Phase. The impact assessment will be based on the findings and assessments of the various specialist reports listed and described below.

Once the EIR has been drafted according to the findings of the specialist reports and their recommended mitigation measures, the DEIR will be made available to all registered I&APs for public comment. The aim of this public comment period is to allow the public to review the findings of the specialist reports and the findings of the significance assessment, the revised development proposal, and the mitigation measures proposed to minimise the impacts of the proposed development. All registered I&APs will be requested to comment on these aspects and confirm and/or reject the findings or assessments based on reasonable and substantiated arguments. Thereafter, reasonable, and substantiated comments will be incorporated into the assessment and a final draft of the development proposal and the EIR produced.

8.2 Competent Authority Consultation

The CA (Mpumalanga DMRE) will be consulted at the following key stages:

- A possible site meeting and site visit with the CA will be held during the EIR phase.
- A consultation meeting will be held with the CA approximately two (2) weeks after the distribution of the DEIR, to discuss any additional comments from I&APs and the outcome of the specialist studies, should it be required. An indication of the CA's satisfaction with the process undertaken to that stage should also be clear after the meeting.
- The FEIR will be submitted to the CA once all outstanding issues have been resolved.
- The CA may convene a meeting post-submission of the FEIR should it be deemed necessary.

8.3 Impact Assessment Methodology

Possible impacts are identified through comments from I&APs, specialist reports, and from the EAP's experience.

The assessment of potential impacts was addressed in a standard manner, to ensure that a wide range of impacts were comparable. The ranking criteria and rating scales are applied to all specialist studies for the proposed development. To enable a scientific approach to the determination of the environmental significance (importance), a numerical value is linked to each rating scale.

Clearly defined rating and rankings scales (**Table 8-1 - Table 8-7**) will be used to assess the impacts associated with the proposed MQE projects. The impacts identified by each specialist study and through PPP will be combined into a single impact rating table for ease of assessment.

Table 8-1: Severity or magnitude of impact

Not applicable/none/negligible	0
Minor/insignificant/non-harmful (no loss of species/habitat)	2
Low/small/potentially harmful (replaceable loss with minimal effort)	4
Moderate/significant/slightly harmful (replaceable loss of species/habitat with great effort and investment)	6
High/highly Significant/harmful (impact to human health or welfare/loss of species/habitat)	8
Very High/extremely significant/extremely harmful/within a regulated sensitive area (loss of human life/irreplaceable loss of Red Data species/conservation habitat)	10

Table 8-2: Spatial Scale of activity

Not applicable/none/negligible	0
Site only	1
Local (within 5km)	2
Regional/neighbouring areas (5km to 50km)	3
National	4
International	5

Table 8-3: Duration of activity

Not applicable/none/negligible	0
Immediate (immediately reversible with minimal effort)	1
Short-term (0-5 years - reversible)	2
Medium-term (5 to 15 years – difficult to reverse with effort)	3
Long-term/life of the activity (very difficult to reverse with extensive effort)	4
Permanent/beyond life of the activity (not reversible)	5

Table 8-4: Frequency of activity (how often activity is undertaken)

Not applicable/none/negligible	0
Improbable /almost never/annually or less	1
Low probability/very seldom/6 monthly	2
Medium probability/infrequent/temporary/monthly	3
Highly probable/often/semi-permanent/weekly	4
Definite/always/permanent/daily	5

Table 8-5: Frequency of incident/impact (how often activity impacts environment)

Almost never/almost impossible/>20%	1
Very seldom/highly unlikely/>40%	2
Infrequent/unlikely/seldom/>60%	3
Often/regularly/likely/possible/>80%	4
Daily/highly likely/definitely/>100%	5

Table 8-6: Legal Issues – governance of activity by legislation.

No legislation	1
Fully covered by legislation	5

Table 8-7: Detection (how quickly/easily impacts/risks of activity on environment, people and property are detected)

Immediately (easier to mitigate)	1
Without much effort	2
Need some effort	3
Remote and difficult to observe	4
Covered (more difficult to mitigate)	5

Each impact identified must be assessed in terms of probability (likelihood of occurring); the consequence of the impact (spatial scale, severity, and duration); and the associated risk (impact significance).

Consequence shall then determined as follows:

CONSEQUENCE = Severity + Spatial Scale + Duration

The probability or likelihood of occurrence of the activity shall then calculated based on frequencies of the activity and impact, whether the activity is governed by legislation and how easily it can be detected:

LIKELIHOOD = Frequency of Activity + Frequency of Impact + Legal issues + Detection

The significance or risk of each identified impact shall then based on the product of consequence and likelihood:

Environmental Significance/Risk = Consequence x Likelihood

Impacts will be rated as either of high, medium, or low significance on the basis provided in **Table 8-8**. Each impact will also be assessed in terms of the level to which there is an irreplaceable loss of resources and its degree of reversibility. The ratings as described in **Table 8-9** and **Table 8-10**.

Table 8-8: Impact significance ratings.

SIGNIFICANCE	ENVIRONMENTAL RISK RATING	COLOUR CODE
High (positive)	>240	H
Medium (positive)	120 to 240	M
Low (positive)	<120	L
Neutral	0	N
Low (negative)	>-120	L
Medium (negative)	-120 to -240	M
High (negative)	<-240 (max = 400)	H

Sub-categories:

Significance	Extreme	Very High	High	Moderate
High	260-400	320-359	280-319	241-279
Significance	High	Moderate	Medium	
Medium	200-240	160-199	120-159	
Significance	Moderate	Moderate	Low	
Low	80-119	40-79	1-39	

Significance	Extreme	Very High	High	Moderate
High	260-400	320-359	280-319	241-279
Significance	High	Moderate	Low	
Medium	200-240	160-199	120-159	
Significance	High	Moderate	Negligible	
Low	80-119	40-79	1-39	

Table 8-9: Irreplaceability of resource caused by impacts

No irreplaceable resources will be impacted (the affected resource is easy to replace/rehabilitate)	**Low**
Resources that will be impacted can be replaced, with effort	**Medium**
Project will destroy unique resources that cannot be replaced	**High**

Table 8-10: Reversibility of impacts

Low reversibility to non-reversible	**Low**
Moderate reversibility of impacts	**Medium**
High reversibility of impacts	**High**

The significance of an impact gives an indication of the level of mitigation measures required to minimise negative impacts and reduce environmental damage during the construction, operational and decommissioning phases. Suitable and appropriate mitigation measures, to ensure avoidance, management and mitigation of impacts, will be identified for each of the

potential impacts based on specialist recommendations and GCS expertise.

8.4 Impact Management

Each specialist has identified means of avoiding, mitigating and/or managing the negative impacts in their aspect of investigation. The recommended management strategies will be synthesized by GCS to formulate the EMPr for the Kangra MQE WWTP and CDF.

8.5 Environmental Management Programme Report (EMPr)

GCS will prepare a Draft EMPr, which is required as part of the EIR submission. The purpose of the EMPr is to control the impacts of construction and operational activities. The effective implementation of an EMPr will ensure that the required works are conducted in an environmentally sound manner and that the potential negative impacts of construction and operational activities are minimised and/or prevented.

The Draft EMPr details the responsibilities and authority of the various parties involved in the MQE WWTP & CDF projects and contains environmental specifications to which the contractor and operator are required to adhere throughout the duration of the construction and operational phases. The Draft EMPr will cover impacts that have been identified in the EIA Process and which could potentially arise during the construction and/or operation of the road. The EMPr will cover the following aspects:

- Project background information.
- Identification/listing of project and operational activities.
- Implementation and operational instructions.
- Roles and responsibilities of parties about environmental management.
- Environmental training and awareness material for construction staff.
- Environmental specifications e.g. protection of biodiversity and sensitive environments, rehabilitation, public safety and perceptions, traffic control, material and waste management, litter, containment and disposal of hazardous substances (e.g. paints, waste oils) etc.
- Measurement of compliance with the EMPr.

8.6 Terms of Reference for the Specialist Investigations

The following terms of reference (ToR) were utilized in appointing the specialist consultants to undertake detailed investigations to assess the significance of potential impacts to the receiving environment. Further to the intended specialist ToR's the legislative requirements applicable to the projects, which has been captured in Table 3-1 of this report, will be shared

with all specialists to ensure that cognisance of these requirements is taken within their individual investigations.

8.6.1 Terrestrial Biodiversity Sensitivity Verification Investigation

The TOR is included in the following Scope of Work (SoW):

The proposed SoW aims to meet the minimum requirements of the DFFE to conduct the relevant specialist assessments in support of a Biodiversity Baseline Assessment (BA).

The selected baseline studies will aim to meet the requirements of DFFE to conduct a biodiversity assessment in the Mpumalanga Province. The following studies will be included in the biodiversity assessment:

- Fauna – Mammals (including bats), birds, reptiles, amphibians & invertebrates.
- Plants and vegetation (including alien vegetation).
- Habitat features – Caves and/or ridges.

Specifically, the Terms of Reference (ToR) included the following:

- Desktop description of the baseline receiving environment specific to the field of expertise (general surrounding area as well as site specific environment).
- Identification and description of any sensitive receptors in terms of relevant specialist disciplines (biodiversity) that occur in the study area, and the manner in which these sensitive receptors may be affected by the activity.
- Identify 'significant' ecological, botanical, and faunal features within the proposed development areas.
- Site visit to verify desktop information.
- Screening to identify any critical issues (potential fatal flaws) that may result in project delays or rejection of the application.
- Provide a map to identifying sensitive receptors in the study area, based on available maps, database information & site visit verification.

8.6.2 Aquatic Wetland Assessment

The SoW for this investigation includes the following:

The aim of the assessment is to provide information to guide the applicant with respect to the current state of the associated water resources in study. This will be achieved through the following:

- The characterisation of the current state of the local river systems.
- The delineation and assessment of wetlands within 500 m of the project area.

- A risk assessment for the proposed development.
- The prescription of mitigation measures and recommendations for identified risks.

The scope of work is:

- Phase 1: Wetland Baseline Assessment:
    - Delineate the extent of the wetland units occurring within and in the vicinity of the mining footprint and proposed expansions.
    - Describe the soil and vegetation of the delineated wetland units based on onsite observations.
    - Determine the Present Ecological State of the delineated wetland areas using the WETHealth tool (Level 1) developed by Macfarlane *et al*. (2009).
- Phase 2: Wetland Impact Assessment:
    - Identify, describe, and assess the potential impacts to be imparted on the delineated wetland units resulting from the establishment an operation of the proposed sand mine; and
    - Provide mitigation measures to avoid, minimise, repair and/or offset the severity/magnitude of the potential impacts on the delineated wetland units.

8.6.3 Heritage & Paleontological Sensitivity Verification Investigation

The aim of the verification investigation is to determine if any known heritage resources occur within the study area and to predict the occurrence of any possible heritage significant sites that might present a fatal flaw to the proposed project. The objectives of the study are to:

- Conduct a desktop study:
    - Review available literature, previous heritage studies and other relevant information sources to obtain a thorough understanding of the archaeological and cultural heritage conditions of the area.
    - Gather data and compile a background history of the area.
    - Determine whether the area is renowned for any cultural and heritage resources, such as Stone Age sites, Iron Age sites, informal graveyards or historical homesteads.
- Compile a Report

  The reporting is based on the results and findings of the desk-top study, wherein potential issues associated with the proposed projects will be identified, and those

issues requiring further investigation through the Scoping Phase highlighted. Reporting will aim to identify the potential impacts of the Projects' activity on heritage resources; and will also consider alternatives should any significant sites be impacted on by the Projects. This is done to assist the applicant in managing heritage resources in a responsible manner, in order to protect, preserve and develop them within the framework provided by heritage legislation.

To comply with the NHRA, it is recommended that a Phase 1 HIA must be undertaken for the study area. During the HIA the potential impact on heritage resources will be determined and levels of significance of recorded heritage resources. The HIA will also provide management and mitigation measures should any significant sites be impacted upon, ensuring that all the requirements of the SAHRA are met. The study area is indicated as insignificant to low paleontological sensitivity on the SAHRA paleontological sensitivity map, and no further studies are required for this aspect.

8.6.4 Geohydrological Assessment

The TOR is included in the following Scope of Work (SoW):

- Desktop Data Review:
  - All available reports relating to the site were assessed, including a review of all geohydrology, hydrology, hydrochemistry, and geology literature data.
  - GCS water monitoring data for the site were assessed and integrated into this investigation.
  - A desktop-level hydrocensus was conducted. The National Groundwater Archive (NGA, 2019), Groundwater Resource Information Project (GRIP, 2016) and the Southern African Development Community Groundwater Information Portal (SADAC GIP) databases were assessed to identify existing groundwater users in the area.
- Baseline Hydrology Review:
  - Hydro-meteorological data collection and analysis.
  - Catchment delineation and drainage characteristics.
  - Determination of catchment hydraulic and geometric parameters.
- Field investigation:
  - A site walk-over assessment was undertaken to map sensitive groundwater-surface water interaction zones identified on a desktop level.
  - Slug testing was conducted on suitable boreholes at the site.

- A groundwater hydrocensus was conducted within a 5km radius of the Maquasa and Kusipongo.

- Hydrogeological, geochemical, and geological conceptual model update:
  - The existing hydrogeological and geological site conceptual model was updated with data obtained for the study area – focusing on the Maquasa and Kusipongo operations areas.
- Groundwater numerical flow and transport update:
  - The steady-state model was updated and calibrated with data available for the study area (2022 monitoring data). The steady-state model was converted to a transient-state model to enable scenario modelling. The following were evaluated:
    - Groundwater flow velocities and directions.
    - The mining operation's impact on groundwater levels and cone of depression is presented as the zone of influence (ZOIf). This includes:
      - MQE- opencast mining in progress.
      - NZ -underground mining in progress.
      - Twyfelhoek (Udumo) adit; and
      - Balgarthern Adit.
    - Source term impacts presented as the zone of impact (ZOIp) for the Maquasa and Kusipongo operations.
- Hydrogeological risk assessment:
  - A risk assessment was conducted based on the source-pathway-receptor principle.
  - The existing impacts associated with the Maquasa and Kusipongo operations on the groundwater and subsequent surface water environments were evaluated.
- Monitoring, Audit and Groundwater remediation plan:
  - A groundwater and surface water monitoring plan, with mitigation measures, was developed for the site based on the baseline assessment of the site conditions.
  - A groundwater remediation plan for the Kusipongo resource Twyfelhoek (Udumo) adit and Balgarthern Adit.
- Reporting:

- A geohydrological report encompassing all work done as well as a groundwater risk assessment and monitoring plan will be compiled.

8.6.5 Hydrological Assessment

The SOW can be summarised as:

- Conduct a quantitative impact assessment of the significance of the proposed MQE Developments impact on the baseline surface water environment.
- Provide a range of mitigation measures to minimise the impacts, and recommendations on the monitoring required.
- Informed by the site layout, baseline hydrological regime and floodline assessment results, the potential impacts of the proposed activities on surface water receptors and the sensitivity of the surface water resources will be discussed and presented along with a summary of mitigation measures and monitoring requirements.
- The impacts of the proposed activities and the infrastructure will be identified and assessed based on the individual impact's magnitude, duration, probability, extent, severity and consequences and the receptor's sensitivity. This analysis then culminates in the determination of the impact significance which indicates the most important impacts and those that required management.

8.6.6 Hydropedological Assessment

The following SOW applies:

- Desktop study:
    - All available reports (which were provided by the client) relating to the site were assessed.
    - Evaluation of soil occurrences in the study area, based on available South African databases.
    - Meteorological evaluation.
    - Catchment delineation.
    - Estimation of soil permeability and soil flow processes based on field observation and desktop data.
    - HOSASH (Hydrology of South African Soils and Hillslopes) index.
- Field investigation:

- Several auger holes will be drilled in the project area, in pre-determined hillslope areas.
- The soils identified in the study area will be screened per the Soil Classification guidelines for South Africa (Department of Agricultural Development, 1991) and (SCWG, 2018) to derive hydropedological flow regimes.

- Water balance and flow modelling:
  - A simple spreadsheet-based water balance model will be used to illustrate unsaturated zone fluxes/water balances.
  - The total water loss during a development phase concerning the natural water processes in a sub-catchment will be estimated. This will be used in conjunction with the water balance flow model to determine the natural stream loss % for a sub-catchment and associated hillslopes.
- Risk assessment:
  - The risk and impact criteria will be applied to the study area, to evaluate hydropedological risks.
  - Natural flow losses will be estimated, using a spreadsheet water balance developed for the site.
- Mapping and report:
  - Several hydrological hillslope profiles, soil distribution and hydrological soil type maps will be produced; and
  - The report depicting the findings of the assessment will be compiled.

8.7 EIA Phase Public Participation

The PPP for the remainder of the Project will involve the following tasks:

8.7.1 Announcement of the Availability of the DEIR and DEMPr

At this point, the specialist studies would have been completed and the Draft EIR (DEIR) and Draft EMPr (DEMPr) would be ready for public review. A letter will be circulated to all registered I&APs, informing them of progress made with the study and the availability of the DEIR and EMPr for a 30-day comment period. The DEIR will be made available similarly to the DSR during the Scoping Phase.

8.7.2 Public Review of the DEIR and DEMPr

The DFFE EIA Guidelines specify that stakeholders must have the opportunity to verify that their issues have been captured and assessed before the EIR will be approved by the

competent authority. The DEIR provides this opportunity and will be written in a way that makes it accessible to stakeholders in terms of language level and general coherence.

As part of the process to review the DEIR and DEMPr, an open day(s) will be arranged, as appropriate, to afford the public the opportunity to obtain first-hand information from the project team members and also to discuss their issues and concerns. Contributions at this meeting will be considered in the Final EIR (FEIR).

8.7.3 Announcement of the Availability of the FEIR and EMPr

After comments from I&APs have been incorporated into the CRR and the DEIR revised accordingly, all stakeholders on the database will receive a letter informing them that the FEIR and EMPr have been submitted to the CA for consideration. Electronic copies of the FEIR will be available should the I&APs wish to review the documents submitted to the CA. The I&APs will be informed that should they wish to submit comments on the FEIR; these must be submitted directly to the CA and copied to the EAP.

8.7.4 Announcement of Authorities' Decision

Based on the contributions by the stakeholders, the decision of the authorities may be advertised through the following methods:

- Letters/emails to individuals and organisations on the database.

Advert in local or regional newspapers.

9 POTENTIAL IMPACTS

The intention of this chapter is to identify and summarise **potential** impacts that are evident through the establishment and operation of the proposed development Projects and associated infrastructure at Maquasa Mine.

Based on the investigation of the receiving environment, as well as the understanding of activities to be carried out for the construction and operation phases of the project, the potential impacts during the various phases of the projects will be identified and addressed in detail during the EIA phase. Potential impacts that have been identified at this stage are summarised in the table below.

Table 9-1: Preliminary impacts identified.

ENVIRONMENTAL ASPECT	POTENTIAL IMPACTS (WITHOUT MITIGATION)	SPECIALIST STUDY REQUIRED
Geology	• No impacts envisaged	N/A
Topography	• Change in natural topography due to construction and development of the proposed new WWTP, CDF and related surface infrastructure	N/A
Soils, Land Use and Land Capability	• Loss of fertile topsoil due to uncontrolled erosion from cleared/disturbed surfaces. • Soil compaction caused by construction phase activities, e.g., the movement of workers and construction vehicles. • Chemical soil pollution caused by unmitigated spillage and seepage of hydrocarbons and wastewater. • Permanent change to land capability of the proposed new development footprints due to the construction and establishment of the projects. • Change to land capability of any surrounding disturbed areas caused by change to soil structure.	N/A
Wetlands	• Increased sediment transport into wetlands due to surface runoff from bare soils following vegetation clearance. • Altered hydrology of wetlands due to the reduced runoff to wetlands caused by the collection of runoff water. • Deterioration of wetlands due to water quality deterioration caused by uncontrolled runoff.	Aquatic Wetland Assessment

ENVIRONMENTAL ASPECT	POTENTIAL IMPACTS (WITHOUT MITIGATION)	SPECIALIST STUDY REQUIRED
Fauna	• Loss or degradation of habitat due to vegetation clearance and the proliferation of alien vegetation in disturbed areas outside the immediate project footprints. • Increased encroachment into natural habitat due to the clearance of vegetation and the establishment of the WWTP, CDF and related structures. • Harm to fauna due to drinking from PCD. • Harm to fauna caused by workers and construction vehicles.	Terrestrial Biodiversity Investigation
Flora	• Direct impacts on flora species due to vegetation clearance and competition with invasive species which may be established due to land disturbances during the construction period. • Increase in local and regional fragmentation/ isolation of habitat.	Terrestrial Biodiversity Investigation
Air Quality	• Air pollution due to vehicle emissions. • Air pollution due to fugitive dust emissions from clearing and earthworks. • Air pollution due fugitive dust emissions from the CDF.	N/A
Surface Water	• Impacts on nearby water resources due to the reduction in catchment surface area size caused by the collecting of “dirty” runoff from the project footprint areas. • Degradation of quality of water due to the possible overflow from the PCD or failure of stormwater management infrastructure and treatment plant.	Hydrological Investigation
Groundwater	• Negative impact on groundwater quality due to seepage from the CDF. • Negative impact on groundwater quality due to spillage from the WWTP.	Geohydrological Investigation
Heritage and Archaeology	• No impacts envisaged due to the lack of any cultural, archaeological or heritage resources located within the proposed project footprints.	Heritage & Palaeontological Investigation
Noise	• Noise emissions by construction vehicles, hauling of building material to and from the construction site as well as the maintenance of equipment/machinery.	N/A
Traffic	• No major increase in traffic levels is foreseen.	N/A
Visual	• Poor visibility due to dust creation. • Change of aesthetics to the landscape due to the construction and development of the proposed new projects.	N/A

ENVIRONMENTAL ASPECT	POTENTIAL IMPACTS (WITHOUT MITIGATION)	SPECIALIST STUDY REQUIRED
Socio-economic	• The impacts on the socio-economic environment is expected to be minimal, because the proposed projects will be located within the existing MRA, at least 2km away from the closest homes. Furthermore, the proposed new projects will not make a major, direct contribution to job creation.	N/A

The potential impacts (positive or negative) and risks of the proposed projects will be assessed in detail during the next phase of the impact assessment, in terms of the requisite criteria which requires the assessment of *"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"*. It is during this phase of the impact assessment where possible mitigation measures and level of residual risks will be identified and analysed.

10 CONCLUSION AND WAY FORWARD

10.1 Conclusion

Local knowledge, professional experience and specialist knowledge of the area have all been used to identify the potential environmental issues associated with this development and the resultant potential environmental impacts. While there is no guarantee that all the potential impacts arising from the proposed development have been identified within the Scoping Phase, the report provides an outline of the established measures that were taken to best identify all the potential impacts. The purpose of the Scoping Phase is NOT to assess and mitigate the potential environmental impacts and issues identified but rather to scope them and determine which need further investigation before an assessment can be undertaken.

The circulation of the DSR for public comment will aim to give the public an opportunity to review the outcomes of the Scoping process and identify additional possible issues that have not yet been identified. This will further enhance the rigour of the scoping process. The Plan of Study for EIA outlines the strategy to identify and assess all these potential impacts and concerns in the EIR Phase.

10.2 Way Forward

The DSR will be submitted to all I&APs for a 30-day comment period. All comments received from I&AP's will be included in the CRR and included as an appendix to the FSR.

The FSR, including the Plan of Study for EIA, will be submitted to the CA for review. Upon receipt of comment from the CA regarding the Final Scoping Report, the Terms of Reference for any further studies would be amended should it be required, and the studies completed.

Following completion of the specialist studies and assessment of the impacts, a Draft EIR would be compiled and will follow a similar public participation procedure to that undertaken for the Scoping Phase, whereby opportunities for engagement would be provided through stakeholder meetings and dissemination of project information. I&APs would be afforded the opportunity to review the DEIR prior to submission to the CA for decision-making.

11 EAP DECLARATION AND UNDERTAKING

I, Reneé Steele, on behalf of GCS Water & Environmental (PTY) Ltd, as the appointed Environmental Assessment Practitioner, declare that:

- I act as the independent environmental assessment practitioner in this application;
- I have expertise in conducting environmental impact assessments, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I will take into account, to the extent possible, the matters listed in Regulation 14 of the Regulations when preparing the application and any report relating to the application;
- I herewith undertake that the information provided in this report is correct, and that the comments and inputs from stakeholders and Interested and Affected Parties received since project announcement, have been correctly recorded in the report;
- I herewith undertake that the information provided in this report is correct, and that the level of agreement with Interested and Affected Parties and stakeholders since announcement of the project, have been correctly recorded in the report;
- I undertake to disclose to the applicant and the Competent Authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the Competent Authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the Competent Authority, unless access to that information is protected by law, in which case it will be indicated that such information exists and will be provided to the Competent Authority;
- I will perform all obligations as expected from an environmental assessment practitioner in terms of the Regulations;
- I am aware of what constitutes an offence in terms of Regulation 48 and that a person convicted of an offence in terms of Regulation 48(1) is liable to the penalties as contemplated in Section 49B of the Act; and
- I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Regulations.

Signature of the EAP: 

Name of Company: GCS Water and Environmental (Pty) Ltd

Date: 20 November 2023

12 REFERENCES

Department of Environmental Affairs. 2017. Guideline on Need and Desirability, Department of Environmental Affairs, (DEA), Pretoria, South Africa.

GCS. April 2013. Kangra Coal Pty (Ltd): Proposed Expansion of Mining Operations: Environmental Impact Assessment and Environmental Management Programme Report.

GCS Water & Environment (Pty) Ltd. 2018. Numerical Groundwater and Transport Model Update for Maquasa East, Maquasa West and Nooitgezien Operations.

GCS. 15 February 2023. Follow-Up Geohydrological Assessment and Numerical Flow & Transport Model Update for Maquasa & Kusipongo Operations.

GCS. 2 June 2023. Ecological Assessment for the Kangra Coal (PTY) LTD Maquasa Mine Pipeline Disposal, WWTWs, Discard Dump near Piet Retief, Mpumalanga Province.

GCS. 2 June 2023. Wetland Assessment for the Kangra Coal (PTY) LTD Maquasa Mine Pipeline Disposal, WWTWs, Discard Dump near Piet Retief, Mpumalanga.

GCS. 18 October 2022. Hydrology Assessment for the Proposed Co-Disposal Facility & Water Treatment Plant at Kangra Maquasa East Operations.

GCS. 17 November 2022. Waste Classification Assessment Proposed Co-Disposal Facility at Kangra Maquasa East Operations.

GCS. 2023. Water Quality Monitoring Report for the Kangra Coal Maquasa East, Maquasa West & Nooitgesien Operations: Third Quarter, 2022 Monitoring Period.

Gert Sibande District Municipality Amended Integrated Development Plan 2021-2022

Hatch. 20 December 2011. Kusipongo Expansion Project - Concept Discard Dump Report - Issued for Client Review.

Wetland Consulting Services. 2013. Kangra Maquasa East and Maquasa West Proposed Opencast Expansion Projects: Wetland Delineation, Ecological and Impact Assessment Report.

APPENDIX A: PROJECT SPECIFIC INFORMATION

Appendix A1 – DFFE Screening Report

SCREENING REPORT FOR AN ENVIRONMENTAL AUTHORIZATION AS REQUIRED BY THE 2014 EIA REGULATIONS – PROPOSED DEVELOPMENT FOOTPRINT ENVIRONMENTAL SENSITIVITY

EIA Reference number: MP 30/5/1/23/2/1/133 & 134 EM

Project name: Maquasa WML & EA

Project title: Maquasa Co-Disposal Facility and Treatment Plant

Date screening report generated: 01/11/2022 10:13:49

Applicant: Kangra

Compiler: GCS

Compiler signature: 

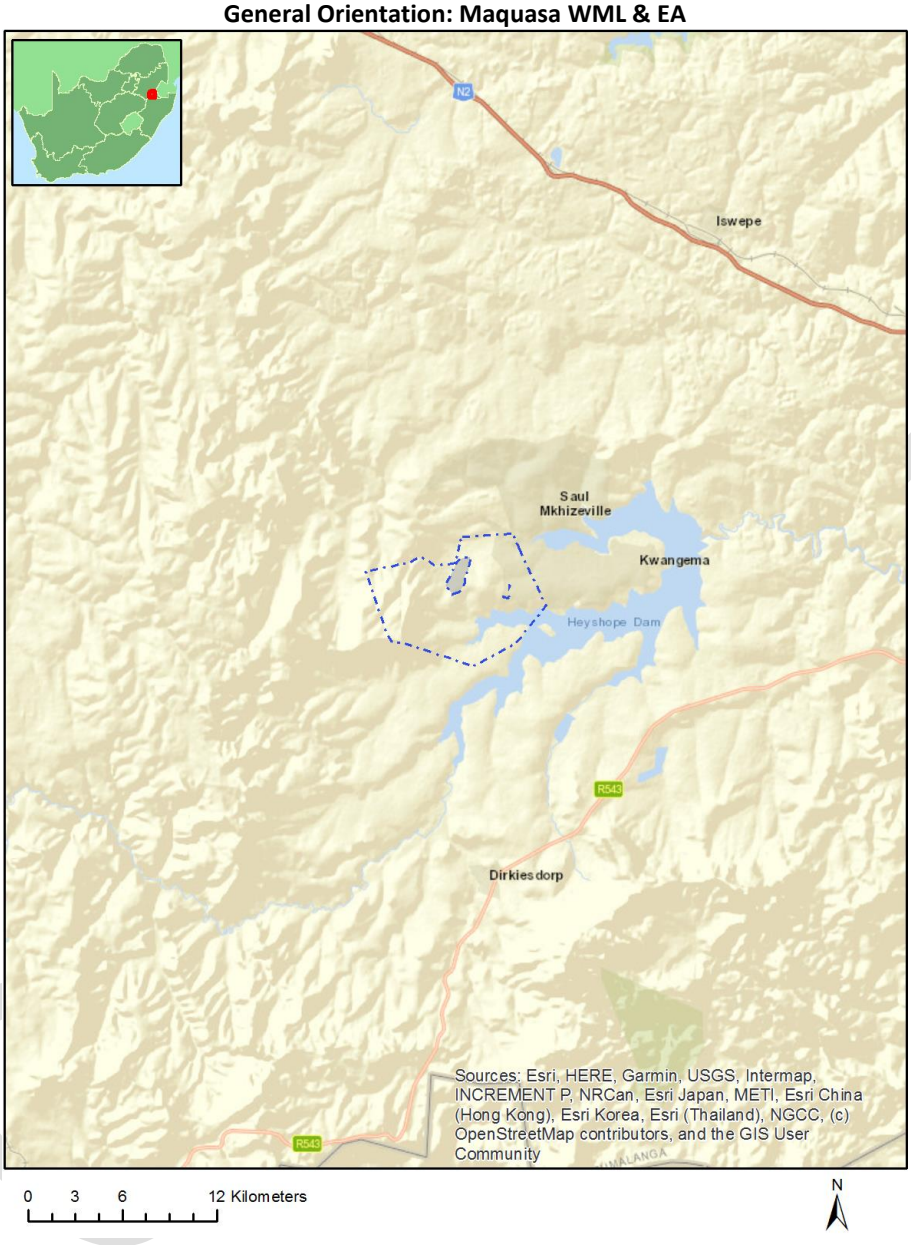
Application Category: Mining|Mining Right

Table of Contents

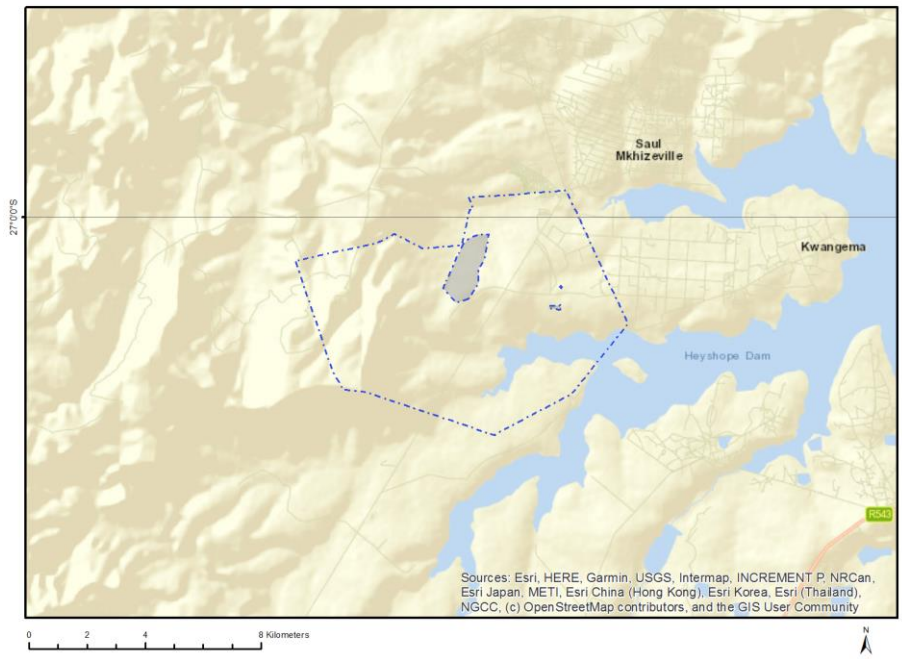
Proposed Project Location

Orientation map 1: General location

General Orientation: Maquasa WML & EA



Map of proposed site and relevant area(s)



Cadastral details of the proposed site

Property details:

No	Farm Name	Farm/ Erf No	Portion	Latitude	Longitude	Property Type
1	DUITSCHLAND	27	0	27°4'3.28S	30°25'19.28E	Farm
2	MAQUASA	19	0	27°2'18.7S	30°22'29.32E	Farm
3	ROOIKOP	18	0	27°0'16.17S	30°21'44.03E	Farm
4	ROODEKRAAL	21	0	27°1'28.12S	30°24'39.19E	Farm
5	DRIEFONTEIN	388	0	26°58'51.68S	30°26'27.41E	Farm
6	ROODEKRAAL	21	38	27°0'58.22S	30°25'35.24E	Farm Portion
7	ROODEKRAAL	21	16	27°0'26.35S	30°24'54.11E	Farm Portion
8	ROODEKRAAL	21	47	27°1'31.92S	30°25'30.79E	Farm Portion
9	ROODEKRAAL	21	51	27°1'31.52S	30°25'52.04E	Farm Portion
10	ROODEKRAAL	21	42	27°1'14.65S	30°25'28.95E	Farm Portion
11	ROODEKRAAL	21	27	27°0'37.68S	30°25'4.42E	Farm Portion
12	ROODEKRAAL	21	26	27°0'51.96S	30°24'49.44E	Farm Portion
13	ROODEKRAAL	21	58	26°59'37.54S	30°24'41.15E	Farm Portion
14	ROODEKRAAL	21	34	27°1'2.95S	30°24'59.61E	Farm Portion
15	ROODEKRAAL	21	41	27°1'16.49S	30°25'19.05E	Farm Portion
16	ROODEKRAAL	21	53	27°1'39.79S	30°25'56.23E	Farm Portion
17	ROODEKRAAL	21	5	26°59'40.19S	30°24'56.28E	Farm Portion
18	ROODEKRAAL	21	45	27°1'25.87S	30°25'21.85E	Farm Portion
19	ROODEKRAAL	21	40	27°1'13.64S	30°25'10.17E	Farm Portion
20	ROODEKRAAL	21	60	26°59'55.45S	30°24'29.08E	Farm Portion
21	ROODEKRAAL	21	61	27°0'3.58S	30°24'28.23E	Farm Portion
22	MAQUASA	19	2	27°2'15.86S	30°23'41.71E	Farm Portion
23	ROODEKRAAL	21	21	27°0'22.09S	30°24'31.58E	Farm Portion
24	ROODEKRAAL	21	43	27°1'7.81S	30°25'39.14E	Farm Portion
25	ROODEKRAAL	21	52	27°1'45.59S	30°25'36.67E	Farm Portion
26	ROODEKRAAL	21	14	27°0'15.96S	30°24'42.2E	Farm Portion
27	ROODEKRAAL	21	66	26°59'50.62S	30°24'56.18E	Farm Portion
28	ROODEKRAAL	21	17	27°0'22.01S	30°25'1.01E	Farm Portion

29	DRIEFONTEIN	388	45	27°1'20.61S	30°25'58.61E	Farm Portion
30	ROODEKRAAL	21	20	27°0'31.91S	30°25'2.33E	Farm Portion
31	ROODEKRAAL	21	25	27°0'45.76S	30°24'49.29E	Farm Portion
32	ROODEKRAAL	21	9	27°0'5.31S	30°24'51.75E	Farm Portion
33	ROODEKRAAL	21	12	27°0'10.92S	30°25'12.07E	Farm Portion
34	ROODEKRAAL	21	13	27°0'11.54S	30°24'35.78E	Farm Portion
35	ROODEKRAAL	21	32	27°0'43.46S	30°25'6.68E	Farm Portion
36	ROODEKRAAL	21	37	27°1'1.48S	30°25'27.5E	Farm Portion
37	ROODEKRAAL	21	2	26°59'47.76S	30°24'26.83E	Farm Portion
38	ROOIKOP	18	0	27°1'3.08S	30°21'45.33E	Farm Portion
39	ROODEKRAAL	21	15	27°0'19.93S	30°24'48.67E	Farm Portion
40	ROODEKRAAL	21	30	27°0'45.2S	30°25'25.46E	Farm Portion
41	ROODEKRAAL	21	6	26°59'45.5S	30°24'56.48E	Farm Portion
42	ROODEKRAAL	21	39	27°1'8.67S	30°24'58.36E	Farm Portion
43	ROODEKRAAL	21	50	27°1'35.77S	30°25'42.22E	Farm Portion
44	ROODEKRAAL	21	49	27°1'39.74S	30°25'32.89E	Farm Portion
45	ROODEKRAAL	21	24	27°0'39.63S	30°24'48.69E	Farm Portion
46	ROODEKRAAL	21	62	27°0'6.22S	30°24'20.75E	Farm Portion
47	ROODEKRAAL	21	63	27°0'30.98S	30°24'40.69E	Farm Portion
48	ROODEKRAAL	21	57	26°59'39.54S	30°24'27.1E	Farm Portion
49	ROODEKRAAL	21	23	27°0'34.79S	30°24'44.51E	Farm Portion
50	ROODEKRAAL	21	28	27°0'32.81S	30°25'19.29E	Farm Portion
51	ROODEKRAAL	21	8	27°0'1.83S	30°24'43.86E	Farm Portion
52	ROODEKRAAL	21	10	27°0'9.39S	30°24'57.32E	Farm Portion
53	ROODEKRAAL	21	11	27°0'8.54S	30°25'4.98E	Farm Portion
54	ROODEKRAAL	21	29	27°0'39.02S	30°25'22.07E	Farm Portion
55	ROODEKRAAL	21	35	27°1'3.49S	30°25'12.54E	Farm Portion
56	ROODEKRAAL	21	33	27°0'53.56S	30°24'58.63E	Farm Portion
57	DRIEFONTEIN	388	44	27°1'30.02S	30°26'0.76E	Farm Portion
58	ROODEKRAAL	21	31	27°0'48.77S	30°25'11.57E	Farm Portion
59	ROODEKRAAL	21	18	27°0'20.13S	30°25'11.09E	Farm Portion
60	ROODEKRAAL	21	36	27°1'5.53S	30°25'21.28E	Farm Portion
61	ROODEKRAAL	21	1	27°2'33.2S	30°24'35.33E	Farm Portion
62	ROODEKRAAL	21	56	26°59'56.5S	30°24'56.45E	Farm Portion
63	ROODEKRAAL	21	54	27°1'19.66S	30°25'43.27E	Farm Portion
64	ROODEKRAAL	21	44	27°1'15.65S	30°25'41.76E	Farm Portion
65	ROODEKRAAL	21	59	26°59'55.15S	30°24'15.1E	Farm Portion
66	ROODEKRAAL	21	67	26°59'38.82S	30°24'49.29E	Farm Portion
67	ROODEKRAAL	21	55	27°0'54.7S	30°25'14.39E	Farm Portion
68	ROODEKRAAL	21	0	27°0'45.48S	30°24'13.79E	Farm Portion
69	DRIEFONTEIN	388	43	27°1'10.25S	30°25'51.04E	Farm Portion
70	DRIEFONTEIN	388	319	26°59'43.95S	30°25'10.42E	Farm Portion
71	DRIEFONTEIN	388	74	27°1'40.08S	30°26'8.22E	Farm Portion
72	ROODEKRAAL	21	70	26°59'45.71S	30°24'45.54E	Farm Portion
73	MAQUASA	19	0	27°2'12.92S	30°22'22.32E	Farm Portion
74	MAQUASA	19	1	27°3'10.78S	30°23'19.47E	Farm Portion
75	ROODEKRAAL	21	46	27°1'23.96S	30°25'32.08E	Farm Portion
76	ROODEKRAAL	21	48	27°1'25.62S	30°25'45.65E	Farm Portion
77	ROODEKRAAL	21	19	27°0'26.31S	30°25'16.29E	Farm Portion
78	ROODEKRAAL	21	22	27°0'27.83S	30°24'37.72E	Farm Portion
79	DUITSCHLAND	27	5	27°3'44.52S	30°24'11.87E	Farm Portion
80	DRIEFONTEIN	388	9	26°59'53.37S	30°25'12.69E	Farm Portion

Development footprint[1] vertices:

[1] "development footprint", means the area within the site on which the development will take place and incudes all ancillary developments for example roads, power lines, boundary walls, paving etc. which require vegetation clearance or which will be disturbed and for which the application has been submitted.

Footprint	Latitude	Longitude
1	27°0'27.71S	30°23'1.54E
1	27°0'20.89S	30°23'9.07E
1	27°0'17.07S	30°23'18.81E
1	27°0'17.59S	30°23'30.51E
1	27°0'42.57S	30°23'25.18E
1	27°0'51.66S	30°23'18.93E
1	27°1'4.76S	30°23'19.27E
1	27°1'21.28S	30°23'7.57E
1	27°1'25.13S	30°22'53.97E
1	27°1'10.27S	30°22'39.45E
1	27°0'27.71S	30°23'1.54E
2	27°1'8.05S	30°24'51.19E
2	27°1'8.87S	30°24'52.2E
2	27°1'10.59S	30°24'50.89E
2	27°1'9.6S	30°24'49.84E
2	27°1'8.05S	30°24'51.19E
3	27°1'28.21S	30°24'37.66E
3	27°1'27.62S	30°24'49.6E
3	27°1'30.93S	30°24'50.98E
3	27°1'32.09S	30°24'49.48E
3	27°1'30.69S	30°24'38.98E
3	27°1'30S	30°24'38E
3	27°1'30S	30°24'38E
3	27°1'28.21S	30°24'37.66E

Wind and Solar developments with an approved Environmental Authorisation or applications under consideration within 30 km of the proposed area

No nearby wind or solar developments found.

Environmental Management Frameworks relevant to the application

No intersections with EMF areas found.

Environmental screening results and assessment outcomes

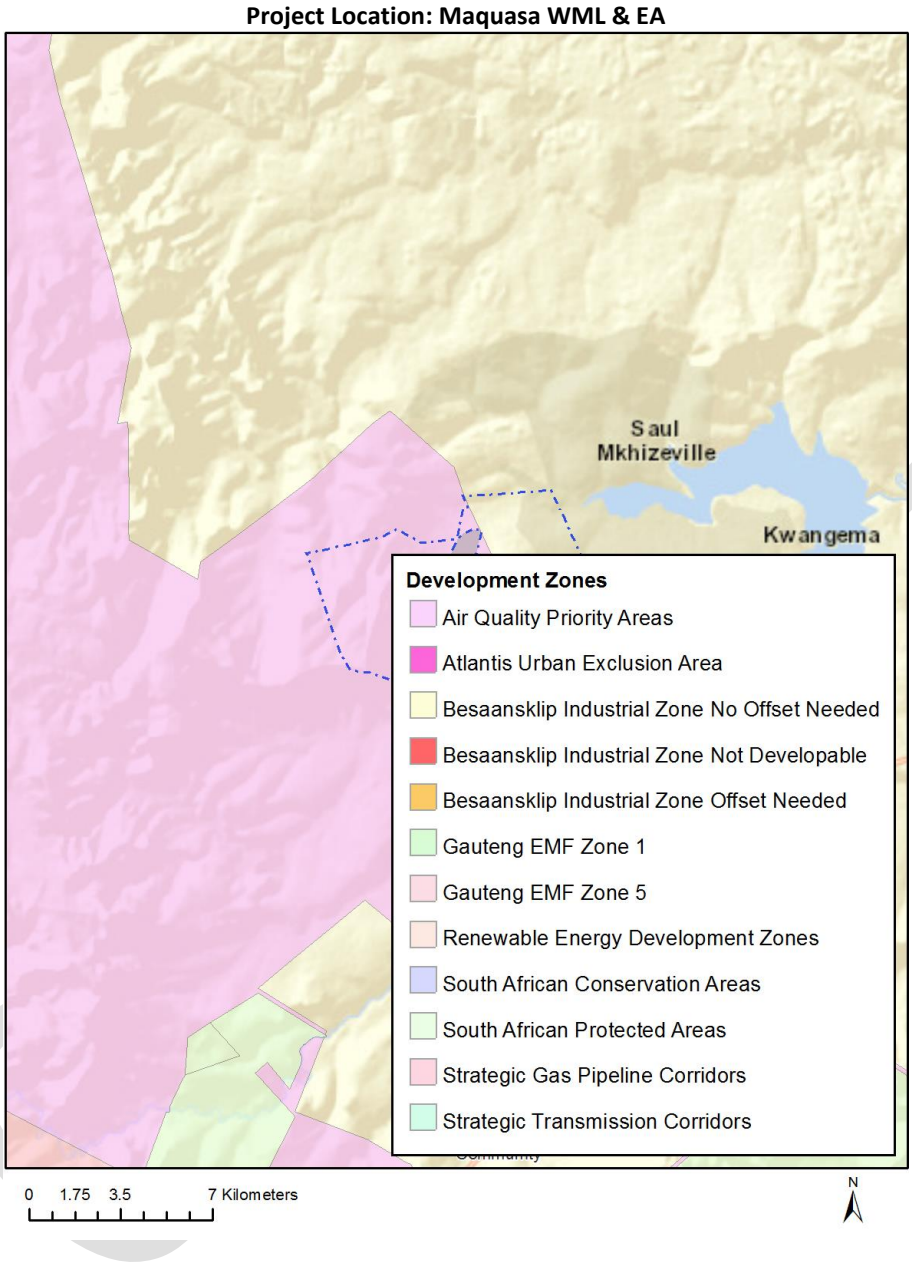
The following sections contain a summary of any development incentives, restrictions, exclusions or prohibitions that apply to the proposed development footprint as well as the most environmental sensitive features on the footprint based on the footprint sensitivity screening results for the application classification that was selected. The application classification selected for this report is:
Mining|Mining Right.

Relevant development incentives, restrictions, exclusions or prohibitions

The following development incentives, restrictions, exclusions or prohibitions and their implications that apply to this footprint are indicated below.

Incentive, restriction or prohibition	Implication
Air Quality-Highveld Priority Area	https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/HIGHVELD_PRIORITY_AREA_AQMP.pdf

Map indicating proposed development footprint within applicable development incentive, restriction, exclusion or prohibition zones



Proposed Development Area Environmental Sensitivity

The following summary of the development footprint environmental sensitivities is identified. Only the highest environmental sensitivity is indicated. The footprint environmental sensitivities for the proposed development footprint as identified, are indicative only and must be verified on site by a suitably qualified person before the specialist assessments identified below can be confirmed.

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Agriculture Theme	X			
Animal Species Theme		X		

Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme				X
Civil Aviation Theme				X
Defence Theme				X
Paleontology Theme	X			
Plant Species Theme			X	
Terrestrial Biodiversity Theme	X			

Specialist assessments identified

Based on the selected classification, and the environmental sensitivities of the proposed development footprint, the following list of specialist assessments have been identified for inclusion in the assessment report. It is the responsibility of the EAP to confirm this list and to motivate in the assessment report, the reason for not including any of the identified specialist study including the provision of photographic evidence of the footprint situation.

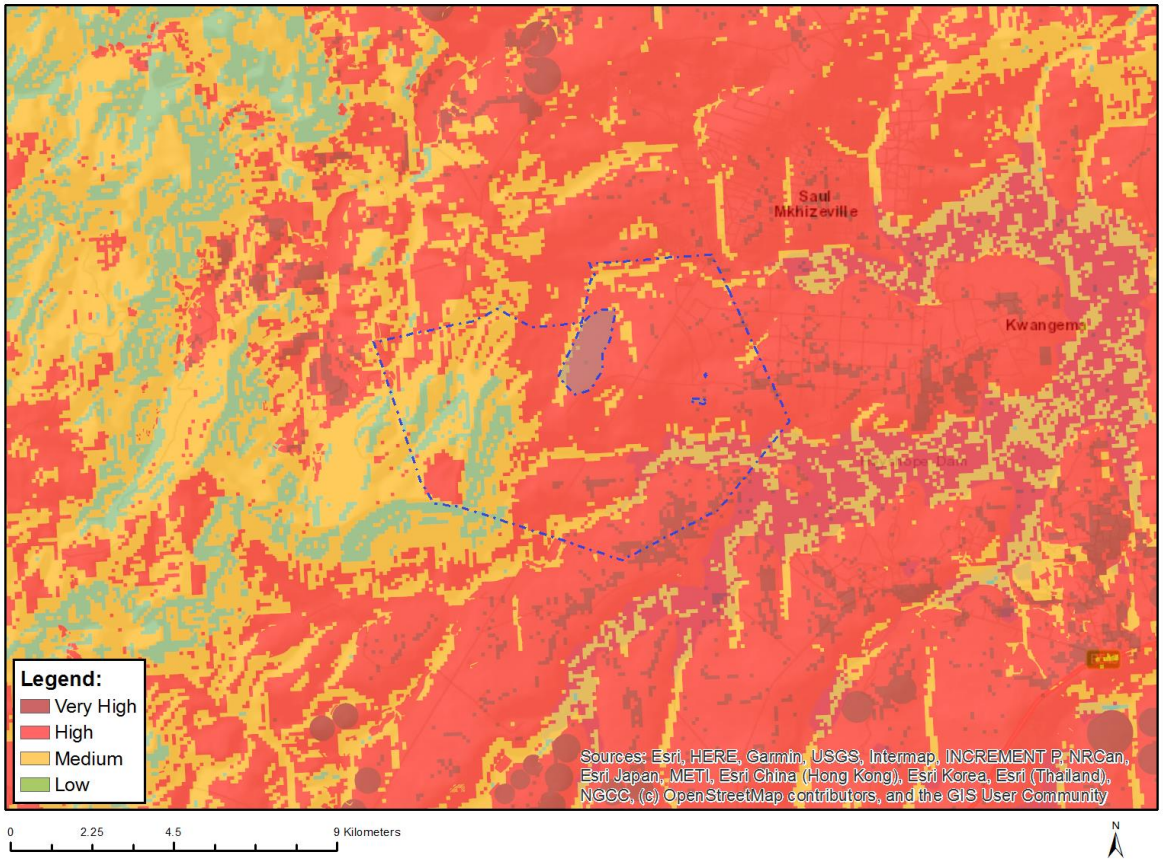
No	Specialist assessment	Assessment Protocol
1	Agricultural Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Agriculture_Assessment_Protocols.pdf
2	Landscape/Visual Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
3	Archaeological and Cultural Heritage Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
4	Palaeontology Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
5	Terrestrial Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Terrestrial_Biodiversity_Assessment_Protocols.pdf
6	Aquatic Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Aquatic_Biodiversity_Assessment_Protocols.pdf
7	Hydrology	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols

	Assessment	/Gazetted_General_Requirement_Assessment_Protocols.pdf
8	Noise Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Noise_Impacts_Assessment_Protocol.pdf
9	Radioactivity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
10	Traffic Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
11	Geotechnical Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
12	Climate Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
13	Health Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
14	Socio-Economic Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
15	Ambient Air Quality Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
16	Seismicity Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
17	Plant Species Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Plant_Species_Assessment_Protocols.pdf
18	Animal Species Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Animal_Species_Assessment_Protocols.pdf

Results of the environmental sensitivity of the proposed area.

The following section represents the results of the screening for environmental sensitivity of the proposed footprint for relevant environmental themes associated with the project classification. It is the duty of the EAP to ensure that the environmental themes provided by the screening tool are comprehensive and complete for the project. Refer to the disclaimer.

MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY

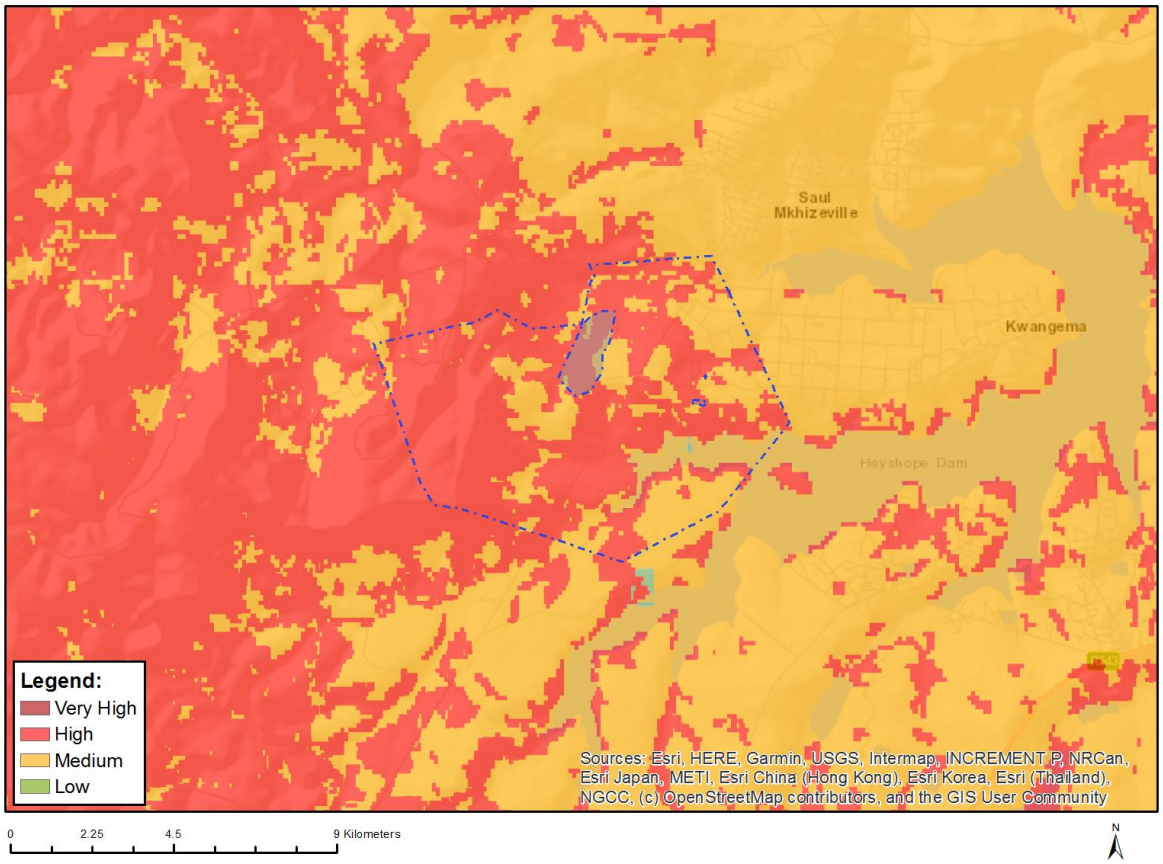


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
High	Land capability;09. Moderate-High/10. Moderate-High
Medium	Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate
Very High	Land capability;11. High/12. High-Very high/13. High-Very high/14. Very high/15. Very high

MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY



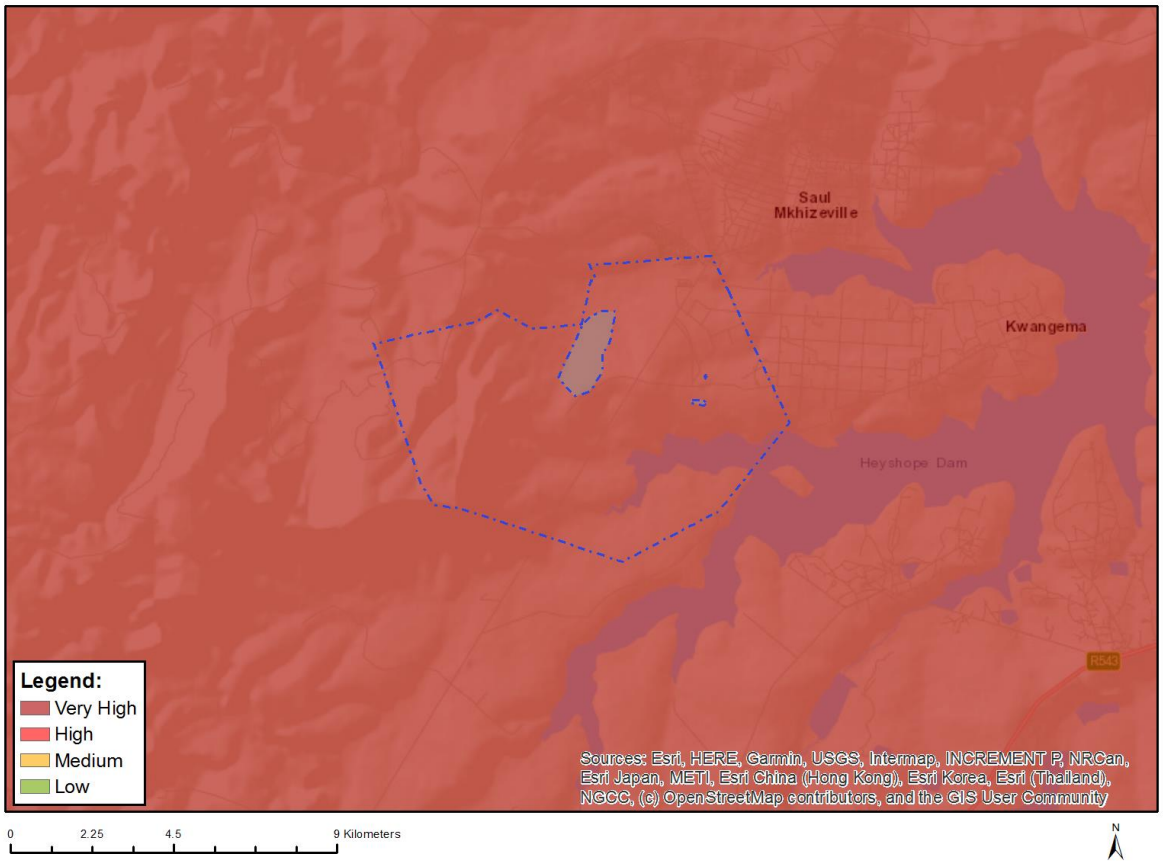
Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Aves-Balearica regulorum
High	Aves-Eupodotis senegalensis
High	Aves-Sagittarius serpentarius
High	Aves-Geronticus calvus
Medium	Mammalia-Chrysospalax villosus
Medium	Mammalia-Crocidura maquassiensis
Medium	Mammalia-Hydrictis maculicollis
Medium	Mammalia-Ourebia ourebi ourebi
Medium	Invertebrate-Doratogonus praealtus

MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY

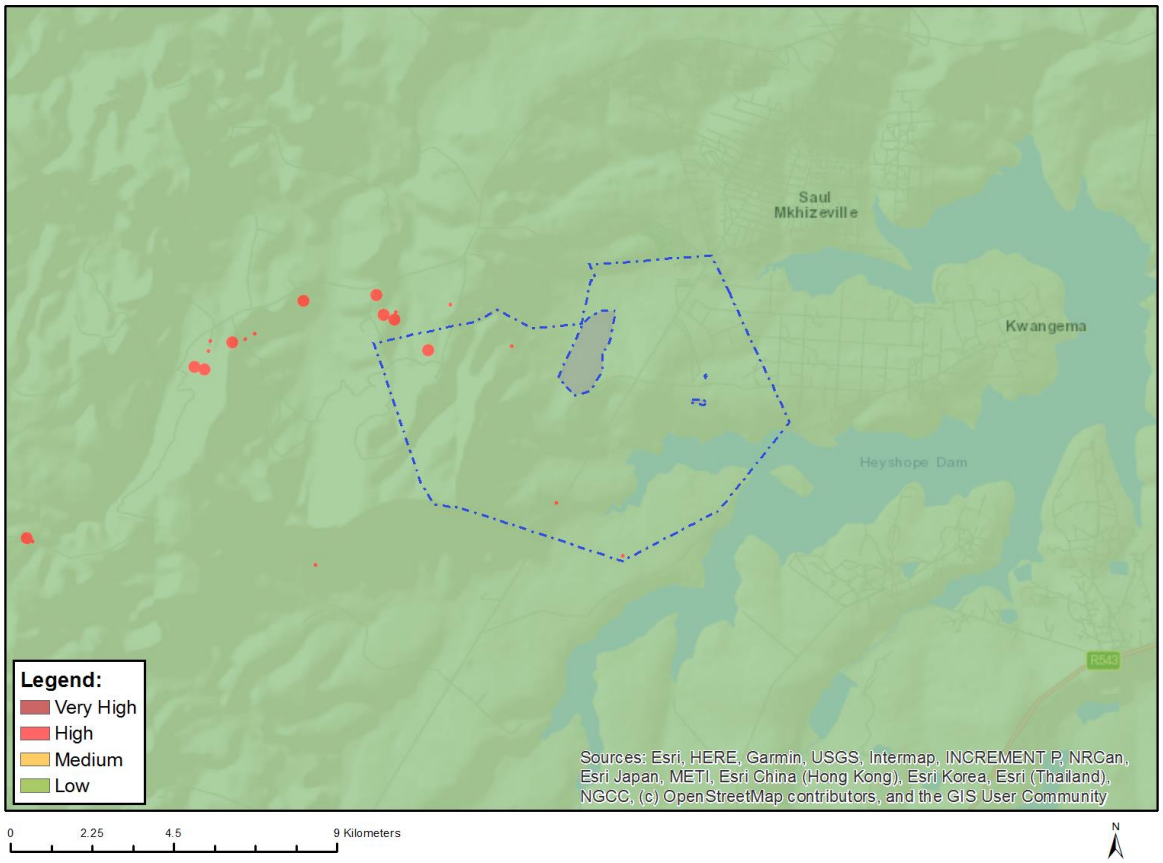


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Very High	Aquatic CBAs
Very High	Strategic water source area
Very High	Wetlands and Estuaries
Very High	Freshwater ecosystem priority area quinary catchments

MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY

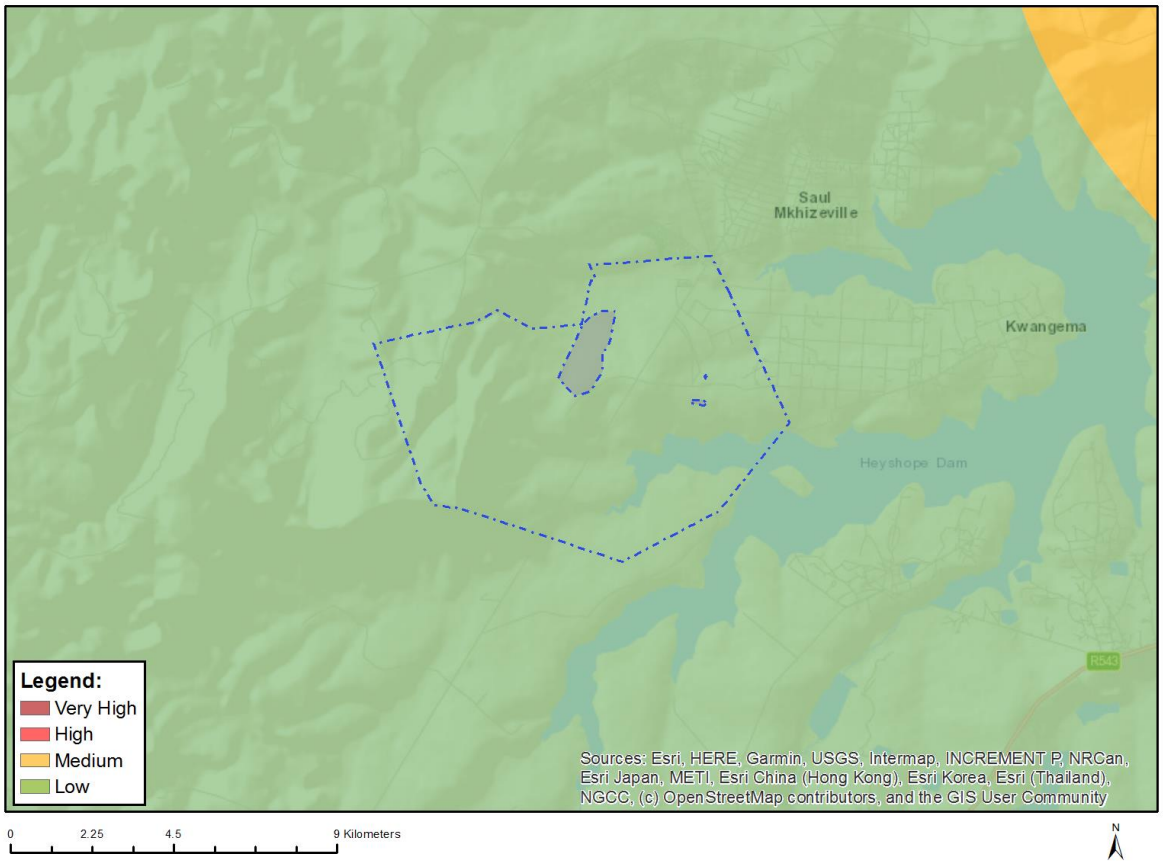


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity

MAP OF RELATIVE CIVIL AVIATION THEME SENSITIVITY

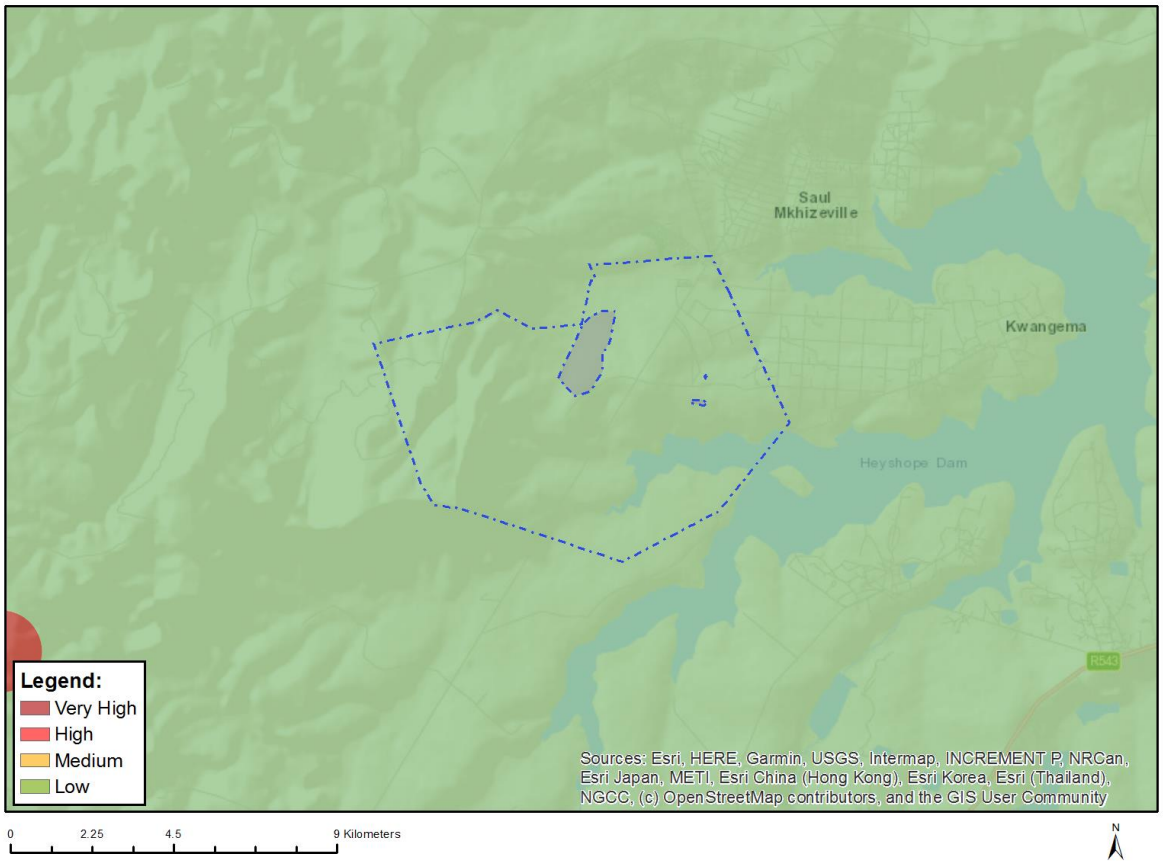


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity

MAP OF RELATIVE DEFENCE THEME SENSITIVITY

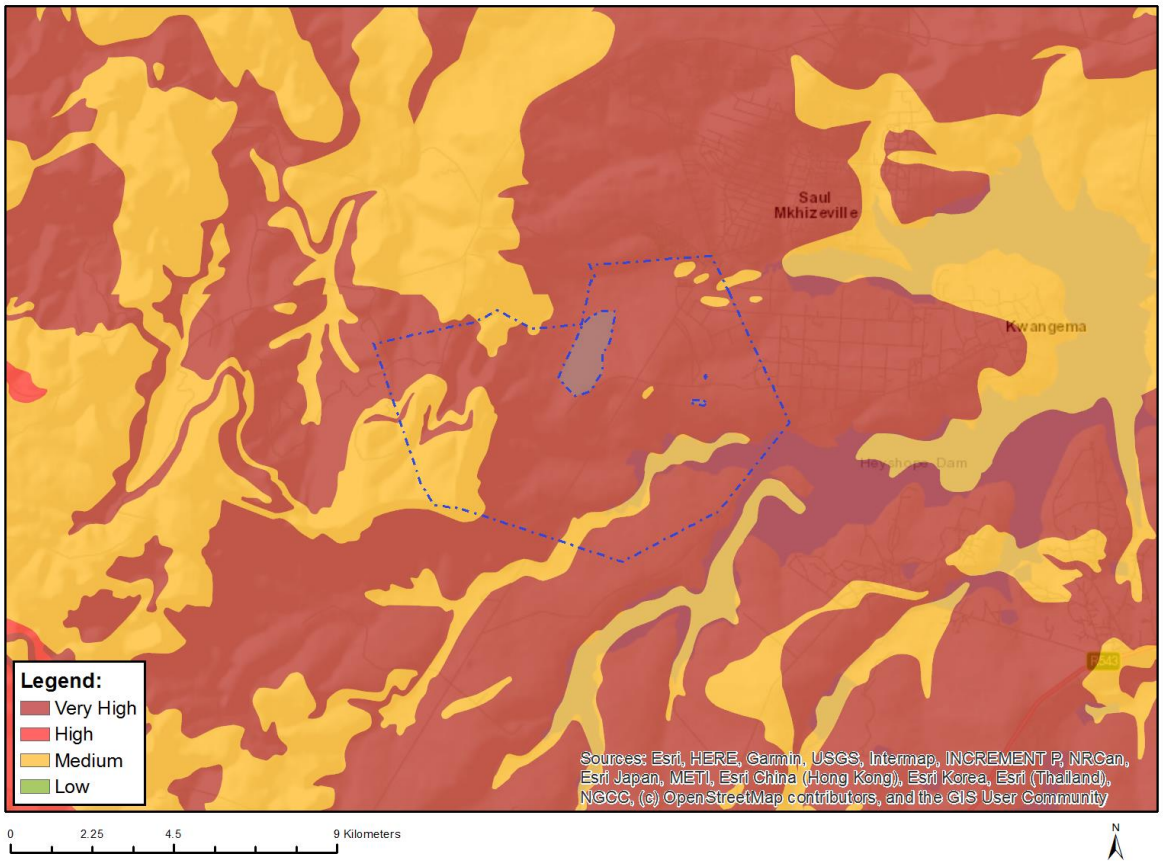


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity

MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY

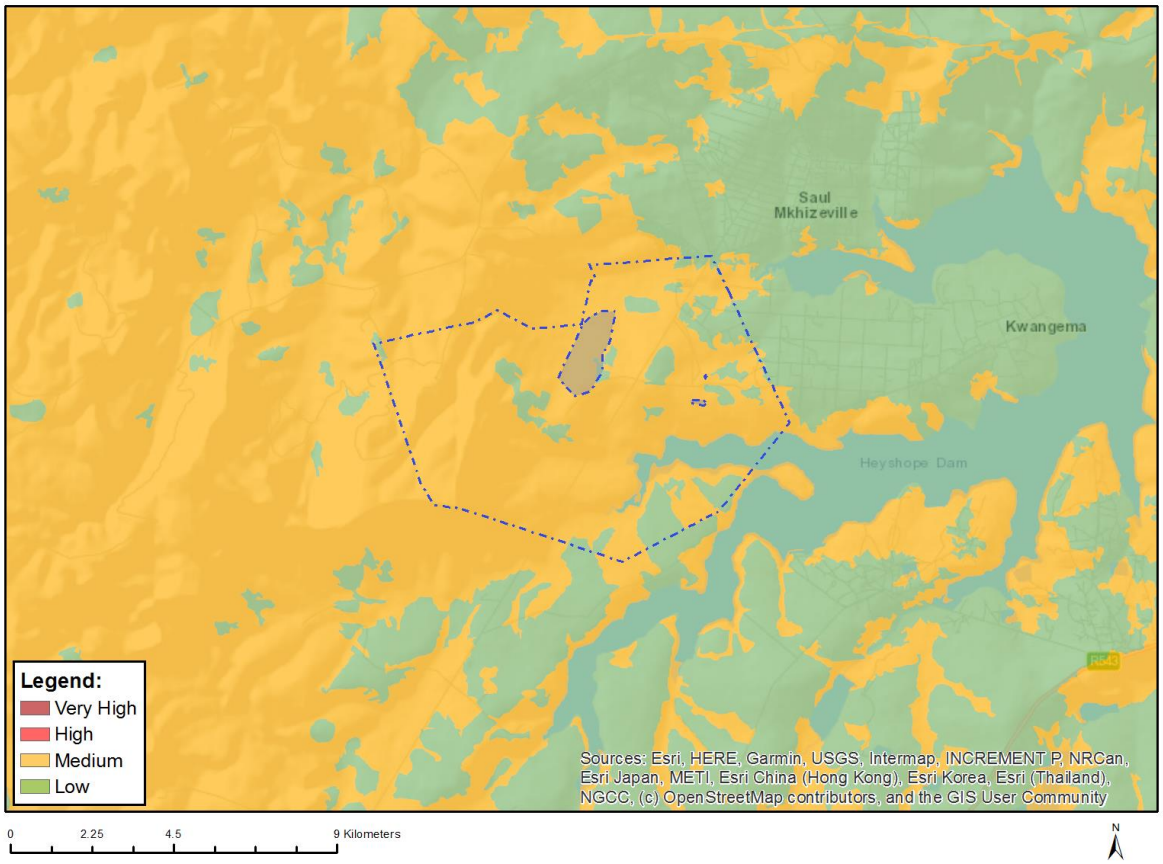


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Medium	Features with a Medium paleontological sensitivity
Very High	Features with a Very High paleontological sensitivity

MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY



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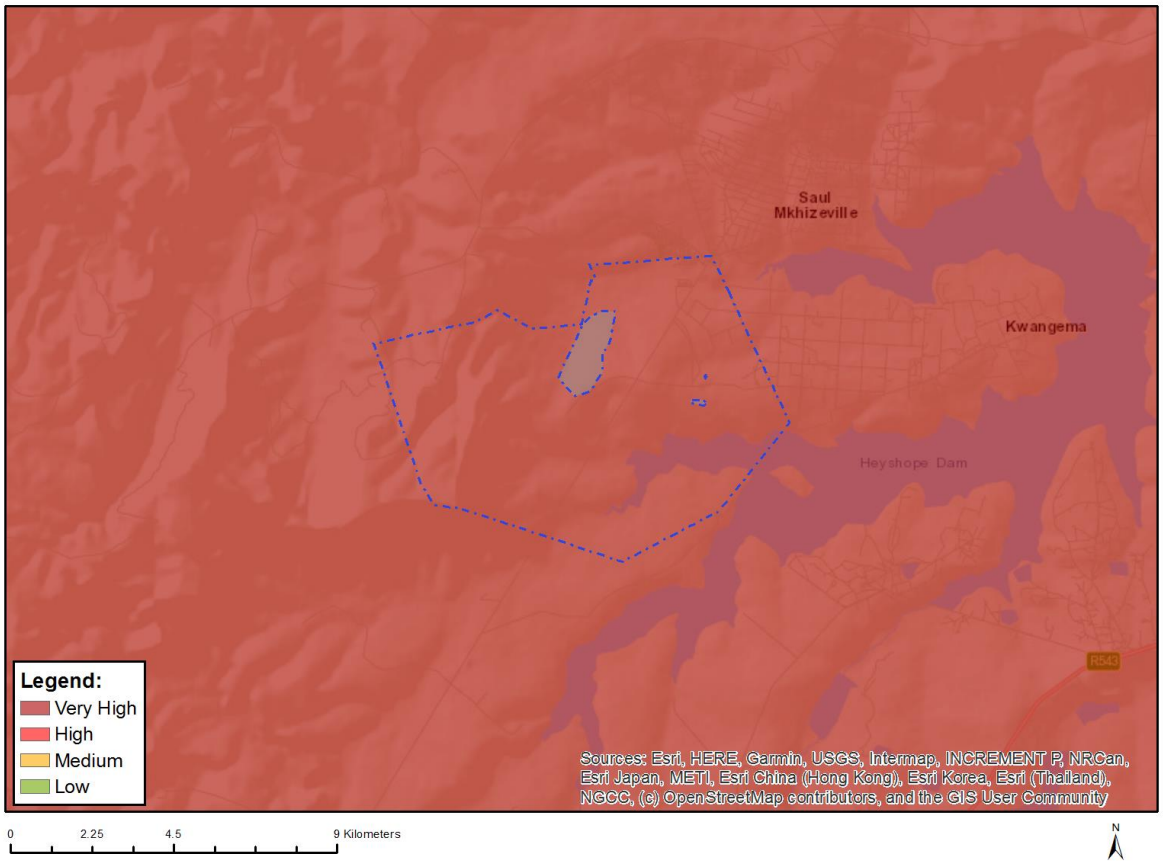
Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity
Medium	Indigofera hybrida
Medium	Sensitive species 41
Medium	Sensitive species 691

MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Very High	Critical biodiveristy area 1
Very High	Critical biodiveristy area 2
Very High	FEPA Subcatchments
Very High	Protected Areas Expansion Strategy
Very High	Vulnerable ecosystem

APPENDIX B: EAP INFORMATION

Appendix B1 – Project Team CV's

MAGNUS VAN ROOYEN
Technical Director

CORE SKILLS

- Environmental Impact Assessments
- Scoping Reports
- Preliminary Environmental Assessment
- Mining Right and Applications
- Environmental Management Programmes
- Strategic Environmental Assessments
- Wildlife Management Plans

DETAILS

Qualifications

- BSc – Botany & Zoology
- B.SC Honours - Botany
- Specialist Student
- Post Graduate Diploma in Teaching
- Masters Degree: Environmental Management

Memberships

- SACNASP
- International Association of Impact Assessors

Languages

- English - fluent
- Afrikaans- fluent
- German – fair
- Dutch – fair
- Zulu - adequate

PROFILE

In addition to holding a Masters Degree: Environmental Management, Magnus also holds a BSc degree in Botany and Zoology, an Honours Degree in Botany and a Post Graduate Certificate in Education.

Magnus has 13 years' experience in projects involving Environmental Impact Assessments in various developmental sectors (Mining and Agricultural Sector, National Roads, Pipelines, Dams, and Residential Developments), conducting of Specialist Biodiversity Assessments associated with Environmental Impact Assessments and Project Feasibility Studies. He has experience in the compilation of Resettlement Policy Framework Plans associated with infrastructure development projects.
Magnus has experience in working on various private and public sectors as well as rural and urban environments in various countries.
His expertise lies within the mining sector where he has gained extensive exposure to all the aspects of mining projects from the pre-feasibility, prospecting, environmental impact assessment

Magnus has experience in the following areas:

- Environmental Impact Assessments
- Scoping Reports
- Preliminary Environmental Assessment
- Mining Right and Permit Applications
- Environmental Management Programmes
- Strategic Environmental Assessments
- Wildlife Management Plans

WORK EXPERIENCE

Year	Employer	Position	Role and Responsibility
2007 – 2020	JG Afrika (Pty) Ltd	Executive Associate	Project Management of an environmental contingent of 4 people and conducting Environmental Impact Assessments
2006 – 2007	JG Afrika (Pty) Ltd	Environmental Scientist	Conducted a wide range of infrastructure related Environmental Impact Assessments
2002 – 2005	Department of Conservation Ecology, University of Stellenbosch	Biodiversity Researcher	Conducted field work, sampling, laboratory work and logistics associated with two projects within the Conservation Ecology Department
2002 – 2005	Department of Botany and Zoology, University of Stellenbosch	Junior Lecturer in Botany	Lectured Botany practical component of the first-year Natural Science Degree
2001 – 2002	Paul Roos Gymnasium	Biology Teacher	Teaching the South African Biology curriculum to high school students

Biodiversity Assessment Projects	**Biodiversity Assessment Projects** **Mamatwan Tailings Facility** Biodiversity and Wetland Assessment for the site to be used for the establishment of the new tailings facility on the South32 Mamatwan Manganese Mine near Hotazel. **Hillside Aluminum Desalination Plant** Biodiversity Screening Assessment for the infrastructure network associated with the South32 Hillside Aluminum Desalination Plant in Richards Bay. **Lichtenburg Siding Expansion** Biodiversity Assessment for the proposed expansion of the Lichtenburg Cement Siding, North West Province. **Nacala Dam Project** Riparian Vegetation Study for the Ecological Reserve Determination Specialist Study for the Environmental Impact Assessment for the Nacala Dam Project in Mozambique. **National Route N8** Vegetation Specialist Study for the Environmental Impact Assessment for the National Route N8. National Route N2 uMgeni Interchange ImprovementsEnvironmental Impact Assessment for proposed improvements to the uMgeni Road Interchange and the National Route N2. The project included an extensive public participation process within the city of Durban, KwaZulu-Natal during the process. **Qudeni Link Road** Vegetation Specialist Study for the Environmental Impact Assessment for the Qudeni Rural Link Road. **Municipal Landfill Site Identification** Negative mapping and ground truthing for the options analysis for the identification of a District Municipality Landfill Site.
Port Related Projects	**Pier 1 Phase 2 expansion** Environmental Impact Assessment for proposed expansions to Pier 1 within the Durban Harbour. Locomotive Turning Table in the Port of Richards Bay Environmental Impact Assessment for proposed Locomotive Turn Table in within the Port of Richards Bay. **Rail line construction in the Port of Richards Bay** Environmental Impact Assessment for proposed additional rail line into the Richards Bay Coal Terminal in the Port of Richards Bay.

	Environmental Monitoring – RME Projects Durban Harbour Environmental Monitoring Duties for all the RME construction projects within the Durban harbour. **Ore Loading Facility at Kalia in Guinea** Environmental Impact Assessment for the proposed Ore Loading Facility in Kalia in Guinea, West.
Roads Projects	**National Route N2 uMgeni Interchange Improvements** Environmental Impact Assessment for proposed improvements to the uMgeni Road Interchange and the National Route N2. The project included an extensive public participation process with a range of public and private sector stakeholders. **National Route N11 upgrade** Environmental Impact Assessment for proposed upgrade of the National Route N11. The project included a public participation process with a range of public and private sector stakeholders as well as specialist studies associated with the river crossings. **National Route N2 improvement and upgrade** Environmental Impact Assessment for proposed upgrade of the National Route N2. The project included a public participation process with a range of public and private sector stakeholders as well as specialist studies associated with the river crossings. **National Route N3 Chota Motala Interchange Environmental Audits** Environmental Monitoring for the construction of the Chota Motala Interchange on the National Route N3. N**ational Route R30 Environmental Audits** Environmental Monitoring for the construction of the National Route R30.
Agricultural Projects	**uMngano Community Dairy Development Project** Environmental and Social Impact Assessment for the Development of a 200ha dairy for the uMngano Community in KwaZulu-Natal, South Africa. **uMngano Community Vegetable Project** Environmental and Social Impact Assessment for the Development of a 180ha vegetable growing project for the uMngano Community in KwaZulu-Natal, South Africa. **Sundays River Citrus Project** Environmental and Social Impact Assessment for the Development of a 100ha citrus project in the Sundays River Valley in the Eastern Cape, South Africa.
Water Projects	**Nacala Dam project in Mozambique for the Millennium Challenge Corporation** Environmental and Social Impact Assessment for the Nacala Dam project in Nacala, Mozambique. The study included the management of a range of specialist studies which included; biodiversity (fauna and flora) assessments, health impact assessments, social impact assessments, a hydrocensus, geotechnical investigation and an ecological flow requirement assessment. The project was conducted under the auspices

	of the Millennium Challenge Corporation. **Mpofana Bulk Water Supply Scheme Environmental Impact Assessment for the Bulk Water Supply Scheme** which included an extensive public facilitation process with affected landowners and other specialist studies. **KwaHlokohloko Rural Water Supply Scheme Environmental Impact Assessment for the Rural Water Supply** Scheme which included an extensive public facilitation process with the rural landowners and tribal leaders. **Conservation Management Plans** **Ndumo Game Reserve Management Plan** Compilation of the Management Plan for the KwaZulu-Natal Wildlife Ndumo Game Reserve in northern KwaZulu-Natal. The compilation was conducted in accordance to the National Environmental Management: Protected Areas Act (No 57 of 2003).
Mining Projects	Uithoek Colliery for Miranda Mineral Holdings Environmental Impact Assessment for the establishment of the Uithoek Colliery including the management of a range of specialist studies which included a hydrological and geohydrological assessment, a biodiversity assessment, a social and heritage assessment and a repatriation plan for residents on the site. **Burnside Colliery for Miranda Mineral Holdings** Environmental Impact Assessment for the establishment of the Burnside Colliery including the management of a range of specialist studies which included a hydrological and geohydrological assessment, a biodiversity assessment, a social and heritage assessment and a repatriation plan for residents on the site. **Ultimate Goal Colliery for Corobrik (Pty) Ltd** Environmental Impact Assessment for the establishment of the Ultimate Goal Colliery including the management of a range of specialist studies which included a hydrological and geohydrological assessment, a biodiversity assessment, a social and heritage assessment and a repatriation plan for residents on the site. **Klipwaal Gold Mine for Miranda Mineral Holdings** Environmental Due Diligence assessment on the Klipwaal Gold Mine which included an assessment of completed and required rehabilitation, a contaminated land liability assessment and an evaluation of the structure and the possible impact of the slurry dams. **Afrimat Quarries Compliance Audits** Compliance audits and Due Diligence assessments of the Afrimat Quarry operations in South Africa. These audits are conducted on a two yearly basis. **Private and Public Sector Development Projects** Provincial Legislature Precinct Environmental and Social Impact Assessment for the proposed Provincial Legislature Precinct. This study consisted of a large public facilitation component and extensive engagement with private and public sector stakeholders.

	Camps Drift Canal Mixed Use Development Environmental Impact Assessment for proposed improvements to the uMgeni Road Interchange and the National Route N2. The project included an extensive public participation process within the city of Durban, KwaZulu-Natal during the process. **Tiger Lodge Development** Environmental Impact Assessment for the proposed Tiger Lodge Tourism Development. **Paradise Lodge Development** Environmental Impact Assessment for the proposed Paradise Lodge Tourism Development.

DECLARATION

I, Magnus Van Rooyen hereby declare that the details furnished above are true and correct to the best of my knowledge and belief and I undertake to inform you of any changes therein, immediately. In case any of the above information is found to be false or untrue or misleading or misrepresenting, I am aware that I may be held liable for it.

Signature: **Date: 27/02/2021**

Gerda Bothma

Environmental Unit Head

CORE SKILLS

- Project Management
- Technical & Impact Assessment Guidance
- Environmental Assessment
- Water Use Licencing
- Waste Management Licencing
- Environmental & Waste Auditing and Compliance Monitoring

DETAILS

Qualifications

- B.Sc. Microbiology (Honours) University of Pretoria 1996
- B.Sc. Biological Sciences University of Pretoria 1994

Memberships/ Professional Affiliations

- International Association for Impact Assessors of South Africa (IAIA)
- Institute of Waste Management of South Africa (IWMSA)
- SACNASP (No.117348) (South African Council for Natural Scientific Professionals)

Languages

- Afrikaans
- English

Countries worked in:

South Africa, Zambia, Namibia

PROFILE

Gerda has over 23 years' experience within the environmental and waste management field and strives to deliver custom environmental services to clients.

Gerda began her career in the environmental field within the government sector, managing environmental aspects and impacts as well as reviewing environmental assessments with the view of authorizing or declining authorization of the developments.

After six years within the government sector she joined a consulting engineering firm where she was ultimately responsible for the Management of the Environmental Sub-Division. Gerda has experience in project and client management, financial management and the compilation and costing of project proposals and tenders. She has been involved in several engineering projects as the Environmental Assessment Practitioner as well as the Environmental Control Officer during construction working closely with the Occupational Health and Safety Officer. Gerda has also been involved in projects where waste licensing as well as water use licensing processes formed an integral part of the services offered. Environmental auditing and compliance monitoring of waste disposal sites also forms part of her experience gained. She also has experience in dealing with projects which involve NEC3 Contracts, the Equator Principles and World Bank IFC Principles.

Gerda has specialist skills in the following areas:

- Project proposals, planning, costing and timing
- Project and Client Management
- Authority Liaison
- Basic Assessments & Scoping/EIA Processes
- Amendment of EA's & EMP's
- S24G Applications
- Facilitation of Public Participation Processes & Stakeholder Engagement
- IWULA & IWWMP Applications
- Environmental Control Officer (ECO) duties
- Environmental Compliance Auditing (IFC Performance Standards & Equator Principles)
- Mentorship & Guidance

Period	Employer	Position	Role/ Responsibility
2019 to Current	GCS Water and Environment (Pty) Ltd	Environmental Unit Manager	Management of the environmental unit in the Durban Office. Management of applications for rectification in terms of Section 24G of the EIA Regulations, undertaking basic environmental assessment and full Scoping & EIR applications in terms of the Regulations. Management of Integrated Water Use License Applications in terms of the NWA. Undertaking of environmental compliance audits for various construction projects as well as environmental legal audit reviews and environmental due diligence investigations.
2018 to 2019	Terramanzi Group (Pty) Ltd	Senior Environmental Consultant	Management of the environmental unit within the Terramanzi Group. Management of applications for rectification in terms of Section 24G of the EIA Regulations, undertaking basic environmental assessment and full Scoping & EIR applications in terms of the Regulations. Undertaking of environmental compliance audits for various construction projects as well as environmental legal audit reviews and environmental due diligence investigations.
2014 to 2017	GIBB (Pty) Ltd	Senior Environmental Scientist	Management of applications for rectification in terms of Section 24G of the EIA Regulations, undertaking of basic environmental assessment and full Scoping & EIR applications in terms of the Regulations. Management of Integrated Water Use License Applications in terms of the NWA. Undertaking of environmental compliance audits for various construction projects as well as environmental legal audit reviews and environmental due diligence investigations.
2011 to 2013	WorleyParsons RSA	Senior Environmental Scientist & Durban Department Head Environment	Management of the environmental unit in the Durban Office. Management of applications for rectification in terms of Section 24G of the EIA Regulations, undertaking of basic environmental assessment and full Scoping & EIR applications in terms of the Regulations. Management of Integrated Water Use License Applications in terms of the NWA. Undertaking of environmental compliance audits for various construction projects as well as environmental legal audit reviews and environmental due diligence investigations.
2003 to 2011	KV3 Engineers	Senior Environmental Scientist	Management of applications for exemption from compliance with the EIA Regulations, undertaking of basic environmental assessment applications, as well as full environmental impact assessment applications.
2000 to 2003	Gauteng Department of Agriculture, Conservation & Environment	Assistant Director: Waste Management Division	Project management and environmental management pertaining to all developments within a designated area in Gauteng Province. Review of EIAs, formulation of comments and or authorisations within designated area in Gauteng Province. Liaison with waste contractors, industries and others. Management of legal interventions required in terms of environmental legislation within a designated area. Supporting environmental officers at all levels in terms of technical and environmental guidance, input into strategic decisions, resolving complex and potentially challenging issues.
1999 to 2000	Gauteng Department of Agriculture, Conservation & Environment	Senior Environmental Officer: Waste Management Division	
1997 to 1999	Gauteng Department of Agriculture, Conservation & Environment	Environmental Officer: Waste Management Division	
1996	Spartan Private School	Teacher: Natural Science & Biology	Teacher in Biology and Natural Science for Grades 7 to 12.

Year	Client	Project Description	Role/ Responsibility
Strategic and Environmental Guidance Projects			
1999 to 2003	Gauteng Department of Agriculture, Conservation & Environment	Development of a Health Care Risk Waste Management Strategy for Gauteng.	Part of Development Team
2001 to 2003	Gauteng Department of Agriculture, Conservation & Environment	Development of Minimum Domestic Waste Collection Standards for Gauteng Province.	Part of Development Team
2002	Gauteng Department of Agriculture, Conservation & Environment	Development of new EIA guidelines and regulations for the Gauteng Province.	Part of Development Team
2005	Gauteng Department of Agriculture, Conservation & Environment	GDACE Green Procurement Project: Development of the GDACE Green Procurement Policy, Gauteng	Project Manager & Reviewer
2008	GAUTRAIN Project Engineers (i.e. KV3 Engineers)	Environmental Assistance for the Gautrain Project: Environmental Evaluation of various documentation and engineering designs in terms of their environmental compliance.	Project Manager & Reviewer
2009	Department of Environmental Affairs	Alignment of MIG Project Process with EIA Process: Evaluation of the EIA process as well as the MIG process in order to produce a process alignment guideline to the municipalities to streamline the two processes.	Part of Development Team
2021	CoalTech	Development of "A Manual for the Authorisation of Pitlakes as a Closure Option for South African Coal Mines"	Part of Development Team
Environmental Feasibility and Screening			
2008	Nu Way-property Developments	Management of Environmental Screening and Due Diligence Assessment for several proposed Nu Way-property Developments, Gauteng.	Project Manager
2008	Department of Water Affairs	Mokolo Croc WAP Environmental Feasibility and Screening, Limpopo.	Project Manager & Senior Environmental Assessment Practitioner (EAP)
2016	Kwadukuza Municipality	Environmental Feasibility for Civil Engineering Project Foxhill Road Alignment and Construction, Tongaat, Kwa-Zulu-Natal.	Environmental Project Leader
2016	King Sabata Dalindyebo Local Municipality (C/O OR Tambo District Municipality)	Environmental Screening Investigation of six proposed development corridors for the Mthatha Bulk Water Infrastructure Presidential Intervention – Phase 2: Secondary Bulk Infrastructure project.	Environmental Project Leader
2019 to 2020	Phumaf Holdings (Pty) Ltd	Environmental Screening for various sites within Ekhurhuleni Municipality as part of the Gauteng Rapid Land Release Programme (GRLRP) project for the Provincial Department of Human Settlements	Project Manager & Senior EAP

Year	Client	Project Description	Role/ Responsibility
Environmental Opinions & Appeals			
2019 to 2020	Tendele Coal	Environmental Review Report for the Somkhele Anthracite Mine (MR 10041) High Court Case Number 82865.	Project Manager & Senior EAP
2022	CNG Holdings	Environmental Opinion regarding the Environmental Legislative Requirements for the proposed Compressed Natural Gas Motherstation in Avoca, KwaZulu-Natal.	Project Manager & Senior EAP
2021 to 2022	Tendele Coal	Environmental support to the Somkhele Anthracite Mine for the IWULA Appeals Process.	Project Manager & Senior EAP
Development Environmental Assessments			
2003 to 2005	ABSA DevCO	Environmental Impact Assessment for a change of land-use from agricultural to Residential and Town Development of the farm Brakfontein 399 JR, Centurion, Gauteng.	Project Manager & Senior EAP
2005 to 2010	Air Traffic Navigation Services (ATNS)	The project entails the upgrading of existing, and the provision of new air navigation sites (27 in total) throughout South Africa. Civil and electrical infrastructure to the sites needed to be upgraded to accommodate the equipment. Various Environmental Impact Assessments for various individual projects in various provinces within South Africa.	Project Manager & Senior EAP
2006 to 2009	Amathole District Municipality	Elliotdale Rural Sustainable Human Settlement Pilot Project Environmental Impact Assessment. Responsible for the environmental assessment process which was based on a strategic approach for the Elliotdale Rural Housing Project, Elliotdale, Eastern Cape.	Project Manager & Senior EAP
2007	Elkem Ferroveld	Environmental Basic Assessment for the upgrading and expansion of the Ferroveld Plant in Ferrometals, Emahlaheni, Mpumalanga.	Project Manager & Senior EAP
2008	ABSA DevCO	Environmental Impact Assessment for a change in land use from agricultural to Residential and Town development of Montana X40, Pretoria, Gauteng.	Project Manager & Senior EAP
2012	Transnet Capital Projects	Environmental Basic Assessment and technical environmental investigations for the proposed expansion of the existing tug jetty and construction of a new tug jetty for Transnet Capital Projects in the Port of Durban, KwaZulu-Natal.	Project Manager & Senior EAP
2014 to 2016	Dube TradePort	Environmental Impact Assessment for the proposed construction of the Dube TradePort TradeZone 2 in La Mercy, KwaZulu-Natal.	Project Manager & Senior EAP
2014 to 2017	Dube TradePort	Environmental Impact Assessment for the proposed Support Precinct 2 Development in La Mercy, KwaZulu-Natal.	Project Manager & Senior EAP
2016 to 2017	Areena Resort	Application for rectification in terms of S24G and associated Environmental Basic Assessment for the alleged unlawful construction activities at the Areena Resort, Great Kei Municipality, Eastern Cape.	Project Manager & Senior EAP
2016 to 2017	Areena Resort	Application for rectification in terms of S24G and associated Environmental Basic Assessment for the alleged unlawful construction activities on Hillsdrift Farm, Great Kei Municipality, Eastern Cape.	Project Manager & Senior EAP
2018 to 2019	Watchman Properties (Pty)	Environmental Basic Assessment for the proposed Vendome Residential Development on	Project Manager &

Year	Client	Project Description	Role/ Responsibility
	Ltd	Portion 1 of Farm 1766 and Portion 2 of Farm 1766, Paarl, Western Cape, South Africa.	Senior EAP
2018 to 2019	Keysha Investments 213 (Pty) Ltd	Environmental Basic Assessment for the proposed River Farm Estate Development and associated infrastructure on remainder of farm Rivierplaas No. 1486, Erf 111 and Erf 197, Paarl, Western Cape, South Africa.	Project Manager & Senior EAP
2018 to 2019	Paarl Vallei Developments (Pty) Ltd	Environmental Basic Assessment for the proposed Paarl Valleij Retirement Village Development, Paarl, Western Cape, South Africa.	Project Manager & Senior EAP
2018 to 2019	Val de Vie Investments (Pty) Ltd	Parallel Substantive Amendment Application process for the authorised Pearl Valley II & Levendal Residential Developments, Paarl, Western Cape, South Africa.	Project Manager & Senior EAP
2019 to 2021	Phumaf Holdings (Pty) Ltd	Environmental Services for: • Full Environmental Impact Assessment for the proposed Unitas Park Ext 16 Mixed Use Development; • Basic Environmental Impact Assessment for the proposed Evaton West F Mixed Use Development; and • Basic Environmental Impact Assessment for the proposed Evaton West I Mixed Use Development.	Project Manager & Senior EAP
Renewable Energy Environmental Assessments			
2011	Farmsecure Carbon	Environmental Basic Assessment and Water Use License Application process for a proposed Biogas Waste to Energy project for a pig farm, Mooiriver, KwaZulu-Natal.	Project Manager & Senior EAP
2018 to 2019	GPIPD – Doornfontein Solar Farm (Pty) Ltd	Environmental Impact Assessment for the proposed 230 MW Doornfontein Photovoltaic Solar Energy Facility (PVSEF) located on Remainder of Farm 118, Doornfontein, Piketberg, Bergrivier Local Municipality, Western Cape.	Project Manager & Senior EAP
2018 to 2019	GPIPD – Kruispad Solar Farm (Pty) Ltd	Environmental Impact Assessment for the proposed 150 MW Kruispad Photovoltaic Solar Energy Facility (PVSEF) located on Remainder of Farm 120, Kruispad, Piketberg, Bergrivier Local Municipality, Western Cape.	Project Manager & Senior EAP
2018 to 2019	Brandvalley Wind Farm (Pty) Ltd	Part 2 Amendment Application for the authorised 140 MW Brandvalley Wind Energy Facility (WEF) located within the Karoo Hoogland, Witzenberg and Laingsburg Local Municipalities in the Northern and Western Cape Provinces.	Project Manager & Senior EAP
2018 to 2019	Copperton Wind Farm (Pty) Ltd	Non-Substantive Amendment Application to update the information of the Holder of the Environmental Authorisation & an EMPr Amendment Process to update the Airstrip Alignment and to provide an updated "outcomes based" EMPr for the Copperton Wind Energy Facility near Copperton in the Northern Cape.	Project Manager & Senior EAP
2018 to 2019	WKN Windcurrent SA (Pty) Ltd	Environmental Impact Assessment for the proposed 150 MW Haga Haga Wind Energy Facility (WEF) & Environmental Basic Assessment for the associated Haga Haga Overhead Powerline (OHPL) in Haga Haga, Great Kei Local Municipality, Eastern Cape.	Project Manager & Senior EAP

Year	Client	Project Description	Role/ Responsibility
2021 to 2022	Cennergi Holdings	Environmental Impact Assessment and Water Use License Application (GA) process for the proposed 100MW Lephalale Solar Plant located mainly on the Farm Appelvlakte 448 within the Lephalale Local Municipality, Limpopo.	Project Manager & Senior EAP
Mining Environmental Assessments			
2007	Chris Hani Municipality	Environmental Assessment and DME Licence Application on behalf of Chris Hani Municipality. Responsible for exemption application from Mining Permit and Environmental Management Programmes for 17 borrow pits in Middelburg, Eastern Cape.	Project Manager & Senior EAP
2010	Samancor Chrome Limited	The Lwala Greenfields Mine and Smelter EIA and EMP. Responsible for the Environmental impact assessment and technical investigations for the waste management issues for the proposed development of a new chrome smelter project in the Steelpoort area, Limpopo.	Project Manager & Senior EAP
2011	Xtrata Alloys	Xtrata Alloys Western Mines PSV application for authorization in terms of the MPRDA. Responsible for the undertaking of the EIA and compilation of the amended EMPr and technical environmental investigations for the proposed development of an open cast mine in Rustenburg, North West.	Project Manager & Senior EAP
2019 to 2021	Harmony Gold	Environmental Assessment process to obtain environmental authorisation for the proposed expansion of the existing Kareerand Tailings Storage Facility, Dr Kenneth Kaunda District Municipality, North-West Province.	Project Manager & Senior EAP
2019 to 2021	Zululand Anthracite Colliery	Environmental Basic Assessment for the proposed New Mngeni Adit & Associated Infrastructure, Mandlakazi Traditional Authority, KwaZulu-Natal.	Project Manager & Senior EAP
2021 to 2022	Sibanye-Stillwater	Part 2 Amendment Application for the approved Burnstone Gold Mine EA/EMPr located near Balfour within the Dipalaseng Local Municipality, Mpumalanga.	Project Manager & Senior EAP
2021 to 2022	Exxaro Resources	Section 34 EMPr Amendment Application for the approved Grootegeluk Mine EMPr located near Lephalale within the Lephalale Local Municipality, Limpopo.	Project Manager & Senior EAP
2021 to 2022	Northam Platinum	Part 2 Amendment Applications for the Booysendal Mine located near Lydenburg, across both Mpumalanga and Limpopo provices: • Booysendal North Mine: New Emergency Escape Portal and two new Ventilation Shafts and associated Infrastructure; and • Booysendal South Mine: New Ventilation Shafts and associated infrastructure.	Project Manager & Senior EAP
Waste Management Environmental Assessments			
2003	Assmang Chrome Machadodorp	Environmental Impact Assessment for the permitting of the H:H Hazardous Waste Disposal Facility at Assmang Chrome, Machadodorp.	Senior EAP
2004	Emfuleni Local Municipality	Environmental Impact Assessment for the closure of the Zuurfontein Landfill site for the Emfuleni Local Municipality, Sedibeng, Gauteng	Senior EAP
2004	Ekurhuleni Municipality	Environmental Impact Assessment for the closure of the Sebenza Landfill Site for the Ekurhuleni Municipality, Gauteng.	Senior EAP

Year	Client	Project Description	Role/ Responsibility
2004	Tzaneen Local Municipality	Application for authorisation and EIA for the permitting of an existing solid waste disposal site for the Tzaneen Local Municipality, Mpumalanga.	Senior EAP
2006	Samancor Chrome Middelburg	Environmental Basic Assessment for the permitting of the existing Slag Waste Disposal facility for Samancor Chrome Middelburg, Mpumalanga.	Senior EAP
2006	Samancor Chrome Ferrometals	Environmental Basic Assessment for the permitting of the existing Slag Waste Disposal facility for Samancor Chrome Ferrometals Witbank, Mpumalanga.	Senior EAP
2007	Steve Tshwete Municipality	Environmental Impact Assessments for four Solid waste Transfer Stations for the Steve Tshwete Municipality, Mpumalanga.	Senior EAP
2008	Assmang Chrome Machadodorp	Environmental Impact Assessment for the expansion of the existing Slag Waste Disposal Facility at Assmang Chrome. Responsible for the EIA application for authorization for the proposed expansion project in Machadodorp, Mpumalanga.	Project Manager & Senior EAP:
2010	ArcelorMittal	ArcelorMittal BOF Slag Disposal site licensing of new site and closure of old site, Newcastle, KwaZulu-Natal.	Project Manager & Senior EAP:
2010	Lekwa Municipality	Waste Management License Application for authorization and the conducting of an EIA and technical environmental investigation for the proposed development of two landfill sites for the Lekwa Municipality, Mpumalanga.	Project Manager & Senior EAP:
2015 to 2017	Umgungundlovu Municipality	Advanced Solid Waste Management Project for Umgundgundlovu Municipality for proposed Materials Recovery Facilities located in various Local Municipalities, Umgungundlovu Municipality, KwaZulu-Natal.	Project Manager & Senior EAP:
2019 to 2022	Buffalo Coal	Magdalena Colliery Waste Management License Application, Dundee, KwaZulu-Natal.	Project Manager & Senior EAP:
Water and Wastewater Environmental Assessments			
2004	Msukaligwa Municipality	Environmental Impact Assessment for the installation of a water reticulation system at Nganga for the Msukaligwa Municipality, Mpumalanga.	Senior EAP
2006 to 2010	eThekwini Municipality: Water and Sanitation	Proposed upgrading of the WWTW capacity in the Northern Areas of the eThekwini Municipality. Responsible for EIA application for authorization, technical environmental investigations, and waste management license application for the proposed expansion of the WWT capacity in Northern eThekwini, KwaZulu-Natal.	Project Manager & Senior EAP
2008	Johannesburg Water	Environmental Management Services for Johannesburg Water: Environmental Impact Assessment (Exemption) for various individual projects related to the upgrading of the Bryanston Water Mains, Gauteng.	Project Manager & Senior EAP
2014 to 2017	eThekwini Municipality: Water and Sanitation	Environmental Basic Assessment and Water Use License Application for the Northern Aqueduct Water Augmentation Project (Phase 5), Durban, KwaZulu-Natal.	Project Manager & Senior EAP
Electrical and Linear Environmental Assessments			
2005	Magallies Water	Application for (exemption) authorisation on behalf of Magallies Water for the installation of	Senior EAP

Year	Client	Project Description	Role/ Responsibility
		the Rising Main from the Roodeplaat Waterworks to the Wallmannsthal Reservoir, in Wallmannsthall, Gauteng.	
2010	Moloto Rail Corridor Development	EIA for the Moloto Rail Corridor Development. Responsible for the EIA application for authorization and technical environmental investigations for the proposed Moloto Rail Corridor Development, Moloto, Gauteng.	Project Manager & Senior EAP
2010	ESKOM	Environmental Basic Assessment of for the ESKOM Honingklip 88kV & ESKOM Randjiesfontein 88kV overhead line and Sub-Stations, Johannesburg, Gauteng.	Project Manager & Senior EAP
2010	ESKOM	Environmental Basic Assessment of for the ESKOM Ubertas Strategic Servitude Sub-Station, Johannesburg, Gauteng	Project Manager & Senior EAP
2014 to 2017	Msunduzi Municipality	Environmental Impact Assessment for the proposed Msunduzi IRPTN project, Pietermaritzburg, KwaZulu-Natal	Project Manager & Senior EAP
Environmental and Waste Management Compliance Monitoring and Auditing			
2005 to 2009	Sedibeng District Municipality	Auditing of Zuurfontein and Boitshepi Landfill sites for the Sedibeng District Municipality, Gauteng.	Part of Audit Team
2006 to 2009	ABSA DevCO	Environmental Compliance monitoring in accordance with relevant authorisation conditions and environmental management plans for the Amberfield Development on the farm Brakfontein 399 JR, Centurion, Gauteng.	Project Manager & Environmental Control Officer (ECO)
2007 to 2009	ABSA DevCO	Environmental Compliance monitoring in accordance with relevant authorisation conditions and environmental management plans for the Zambezi Estate Development, Montana, Gauteng.	Project Manager & ECO
2008 to 2009	Steve Tshwete Municipality	Auditing of Middelburg Landfill Site for the Steve Tshwete Municipality, Mpumalanga.	Part of Audit Team
2008 to 2009	ABSA DevCO	Environmental Compliance monitoring in accordance with relevant authorisation conditions and environmental management plans for the Cedar Creek Development, Fourways, Gauteng.	Project Manager & ECO
2017 to 2018	Dube TradePort	Environmental Compliance monitoring in accordance with relevant authorisation conditions and environmental management plans for the construction of TradeZone 2, Dube TradePort, La Mercy, KwaZulu-Natal.	Project Manager & ECO
2017	Richards Bay Minerals	Environmental Legal Compliance Audit to determine the level of compliance of Richards Bay Minerals' to their various mining, water and waste licenses and environmental authorisations and permits, Richards Bay, KwaZulu-Natal.	Project Manager & Environmental Auditor
2017 to 2018	eThekwini Municipality	Environmental Compliance monitoring in accordance with relevant authorisation conditions and environmental management plans for the construction of the Northern Aqueduct Phase 5, Durban, KwaZulu-Natal.	Project Manager & ECO
2019	Buffalo Coal	Annual EMPr and WUL audits for Coalfields, Aviemore and Magdalena Operations, Dundee, KwaZulu-Natal.	Project Manager & Lead Auditor

Year	Client	Project Description	Role/ Responsibility
2020	Buffalo Coal	Annual EMPr and WUL audits for Coalfields, Aviemore and Magdalena Operations, Dundee, KwaZulu-Natal.	Project Manager & Lead Auditor
2020	Samancor Eastern Chrome Mines	Annual Performance Assessment Audits for the following mines in Limpopo: • Doornbosch, Steelpoort and Montrose Mines; • Quartz Mine; • Lwala Mine; • Lannex Mine; • Spitskop Mine; and • Tweefontein Mine.	Project Manager & Technical Review
2020	ESKOM	ESKOM Biennial PCB Phase-out Compliance Audit, various sites within South Africa.	Project Manager & Lead Auditor
2020	ESKOM	Majuba Power Station Legal Compliance Audit, Volksrust, Mpumalanga.	Project Manager & Lead Auditor
2021	Zululand Anthracite Colliery	Annual IWUL Audit for 2020, Mandlakazi Traditional Authority, KwaZulu-Natal	Project Manager & Technical Review
2021	ESKOM	Kendal Power Station Legal Compliance Audit, eMalahleni Local Municipality, Mpumalanga.	Project Manager & Lead Auditor
2021	Coalition Trading	External Compliance Audit for the Humberdale Landfill Site, in terms of the Waste Management Permit, KwaZulu-Natal	Project Manager & Auditor
2021	Tronox KZN Sands (Pty) Ltd	NEM: WA Norms and Standards External Waste Compliance Audit for the Tronox Central Processing Complex located in Empangeni, KwaZulu-Natal	Project Manager & Lead Auditor
Integrated Water Use License Applications			
2010	FOSKOR	Integrated Water Use License Application for a new storage dam for FOSKOR, Richards Bay, KwaZulu-Natal.	Part of Project Team
2014 to 2015	SANRAL	Integrated Water Use License Applications as required for the proposed SANRAL N2 Road upgrade from Mthunzini to Empangeni, KwaZulu-Natal.	Project Manager & Senior EAP
2014	eThekwini Municipality: Roads	Integrated Water Use License Application for the proposed Realignment of Inanda Arterial Road, Durban, KwaZulu-Natal.	Project Manager & Senior EAP
2015 to 2017	SMEC (Umzimkulu Municipality)	Integrated Water Use License Application for the proposed Licensing of the existing Umzimkhulu Waste Water Treatment Works, Umzimkhulu, KwaZulu-Natal.	Project Manager & Senior EAP
2014 to 2016	eThekwini Municipality: Roads	Water Use License Application for the proposed eThekwini BRT Route C1A, Durban, KwaZulu-Natal.	Project Manager & Senior EAP
2019 to 2020	Zululand Anthracite Colliery	Integrated Water Use License Application for the new Mngeni Adit and associated infrastructure, Mandlakazi Traditional Authority, KwaZulu-Natal.	Project Manager & Senior EAP

Year	Client	Project Description	Role/ Responsibility
2019 to 2021	South32 SA Coal Holdings	Integrated Water Use License Application for the Roy Point Mine, Newcastle, KwaZulu-Natal.	Project Manager & Senior EAP
2020 to 2022	Buffalo Coal	Integrated Water Use License Amendment Application for the Magdalena Colliery, Dundee, KwaZulu-Natal.	Project Manager & Senior EAP
2020 to 2022	Buffalo Coal	Integrated Water Use License Application for the Coalfields Processing Plant, Dundee, KwaZulu-Natal.	Project Manager & Senior EAP
Management and Master Plans			
2005	Livingstone Municipality	Development of the Livingstone Integrated Development Plan, Zambia.	Part of the Project Team
2008	Steve Tshwete Municipality	Development of an Integrated Waste Management Plan for the Steve Tshwete Municipality, Mpumalanga.	Part of the Project Team
2008	Kungwini Local Municipality	Development of an EMP (Framework) for Kungwini Local Municipality, Mpumalanga.	Part of the Project Team
2010	KZN Department of Public Works – Southern Region	Compilation of an Environmental Management Plan for the Fort Napier sewage upgrading project, Pietermaritzburg, Kwa-Zulu Natal.	Project Manager & Senior EAP

DECLARATION

I, ___Gerda Bothma_____ hereby declare that the details furnished above are true and correct to the best of my knowledge and belief and I undertake to inform you of any changes therein, immediately. In case any of the above information is found to be false or untrue or misleading or misrepresenting, I am aware that I may be held liable for it.

Signature:  _____ Date: 30/05/2022

PERSONAL

Full Names
Reneé Lynneil Steele

Contact Number
084 986 6816

Email:
renee@steeleenviro.co.za

Languages:

English: ★★★★★

Afrikaans: ★★

PROFESSIONAL REGISTRATIONS

- South African Council for Natural Scientific Professions: Professional Natural Scientist [Pri. Sci. Nat. 134899].
- Environmental Assessment Practitioners Association of South Africa: Registered Environmental Assessment Practitioner (Reg. No. 2022/4847)

AFFILIATIONS

Member of the International Association for Impact Assessment

ADDITIONAL TRAINING

- Certificate: Integrated Water Resource Management, Water Use Authorisations, and Water Use Licence Applications- Procedures, Guidelines, IWWMPs and Pitfalls (held by: Carin Bosman Sustainable Solutions) (September 2012).
- ISO 14001:2015 Facilitation/Implementation Course.
- ISO 45001:2015 Facilitation/Implementation Course.
- Integrated Management Systems Training (ISO9001:2015, ISO 14001:2015 and ISO 45001:2018).

REFEREES

Mrs. Tanja Bekker (former Environmental Unit Manager): 082 412 1799

Mr. Russell Stow (former Environmental Unit Manager): 083 633 7636

Curriculum Vitae of

Reneé Steele

EDUCATION

University of South Africa, 2020: BSc (Honours) Environmental Monitoring and Modelling

University of KwaZulu-Natal, 2006: BSc Zoology

Raisethorpe Secondary School, 2002: Matric Certificate with Exemption

WORK EXPERIENCE (REFER TO ATTACHED LIST)

Steele Environmental Consulting (Pty) Ltd- Director
February 2017 - present

- Management of projects to ensure projects were completed within the agreed upon or legislated timeframe.
- Managing project budgets.
- Environmental Control Officer duties.
- Marketing to new clients and compiling proposal.
- Environmental auditing and consulting.
- Compilation and distribution of invoices and statements to clients.

GCS (Pty) Ltd- Senior Environmental Consultant
October 2007- August 2016

- Management of project timeframes to ensure projects were completed within the agreed upon or legislated timeframe.
- Liaison with clients, provincial and national authorities, and the public.
- Management of interdisciplinary specialist teams.
- Managing project budgets.
- Undertaking Environmental Impact Assessments, Water Use Licence Applications, Environmental Performance Audits, Water Use Licence audits, Environmental Management Programme amendments and permit applications.
- Marketing and compilation of proposals.

SKILLS

Computers and technology:	★★★★
Communication:	★★★★
Leadership:	★★★★
Project management:	★★★★★
Report writing:	★★★★★
Organisational:	★★★★

Environmental Consulting Work History- Renee Steele

PROJECT	ROLE AND FUNCTIONS
EIA and EMP	
Roypoint Mine Remediation Project Newcastle, KwaZulu-Natal	Project management, compilation of EIA, EMP and IWULA (handed over before completion due to retrenchment in August 2016).
Kangra Coal Maquasa East Discard Dump: Piet Retief, Mpumalanga	Project Manager, public consultation, and compilation of EIA, EMP and IWULA.
Jacomynspan Mining Right Application: Putsonderwater, Northern Cape Province	Environmental Scoping Report and EIA Report compilation.
Two Rivers Platinum New Tailings Storage Facility: Steelpoort, Limpopo	NEMA EIA/EMP Report compilation.
Northam Zondereinde Mine MPRDA EMP consolidation; and NEM: WA Basic Assessment: Northam, Limpopo	Project management, MPRDA EMP and NEM:WA Basic Assessment process (including public consultation).
Coal Briquetting Plant EMP Addendum for Total Coal Forzando North Coal Mine: Bethal, Mpumalanga Province	Compilation of EMP addendum.
Mining Permit Environmental Management Plans for Coal Mining Permit Applications: Witbank, Mpumalanga Province	Project management, mining permit application, public consultation and EMP compilation.
Mukulu Project EMP & NEMA Process: Hotazel, Northern Cape Province	Project management, NEMA and MPRDA process, including report compilation and public consultation.
Kwanyana Block Prospecting Right Application: Bizana, Eastern Cape Province	Report compilation and public consultation.
Tormin Mineral Sands Resources Prospecting Right Application: Lutzville Western Cape Province	Report compilation and public consultation.
Witkop Exploration and Mining- Mining Permit Application: Viljoenskroon, Free State Province	Public notification and ESR compilation.
Assmang Iron Ore, Beeshoek Mine: Road Diversion: Beeshoek, Northern Cape Province	Public consultation and EIA/EMP report compilation.
African Exploration Mining and Finance Corporation Prospecting Permit, Cape Town, and Stellenbosch: Cape Town and Stellenbosch, Western Cape Province	Public consultation, compilation of EMP and Stakeholder Engagement Report.
ArcelorMittal South Africa Vanderbijlpark Works Temporary Storage Area: Vanderbijlpark, Gauteng Province	Compilation of Basic Assessment Report.
Rand Refinery Cadmium Furnace Project, Exemption Application: Germiston, Gauteng Province	Public consultation, compilation of exemption application and EMP.
Northam Booysendal Mine: Environmental Authorisation: Roosenekal, Limpopo Province	Environmental Scoping Report compilation.
Moshutwa Trading Prospecting Permit Application, Lephalale: Lephalale, Limpopo Province	Prospecting right application, public notification, and compilation of EMP and stakeholder engagement report.

PROJECT	ROLE AND FUNCTIONS
NFT Quarries Mining Permit Application, East London (Council for Geoscience): East London, Eastern Cape Province	Prospecting right application, public notification, and compilation of EMP and stakeholder engagement report.
Environmental Control Officer	
Booysendal Platinum Mine South Expansion Project	Environmental Control Officer duties
Performance Audits	
Menar Riverside Anthracite Colliery, PAR, Vryheid, KwaZulu-Natal	NEMA Regulation 34 Performance Assessment
Steynol Welgedacht siding IWUL Audit	IWUL performance audit
Canyon Coal Hakhano Colliery, Middleburg Mpumalanga	IWUL performance audit and NEMA PAR.
Rietkuil Siding, IWUL audit, Mpumalanga (2019 and 2021)	IWUL performance audit
Pan Siding, IWUL audit, Mpumalanga (2019 and 2021)	IWUL performance audit
Canyon Coal Hakhano Colliery, Middleburg Mpumalanga (2019)	IWUL performance audit and NEMA PAR.
Canyon Coal Argent Siding, Mpumalanga	IWUL performance audit
Assmang Chrome Machadadorp Works, Machadorp, Mpumalanga	IWUL, Waste Licence, EMP and environmental authorisation performance audits
Kathu Solar Park, Kathu, Northern Cape	EMP and IWUL performance audits.
Anglo Lephalale Coal Bed Methane GA: Lephalale, Limpopo	Reporting on General Authorisation compliance.
Anglo Platinum Limited: Polokwane Metallurgical Complex (PMC), Polokwane, Limpopo	IWUL compliance audit and reporting.
Northam Zondereinde Mine Environmental Performance Assessment; Northam, Limpopo	Environmental Performance Assessment (EMP)
SNS Bricks, Vereeniging, Environmental Performance Audit: Vereeniging, Gauteng Province (2009).	Environmental Performance Assessment (Environmental Authorisation)
Xstrata, Horizon Mine Waste Licence Audit: Rustenburg, North West Province	Environmental Performance Assessment (Waste Licence)
SNS Bricks, Vereeniging, Environmental Performance Audit: Vereeniging, Gauteng Province (2008).	Environmental Performance Assessment (Environmental Authorisation)
Water Use Licensing	
Ballengeich Remediation IWULA/IWWMP, Newcastle, KwaZulu-Natal (Current)	IWWMP Compilation, liaison with authorities.
Rainbow Farms (Pty) Ltd: Water Use Registrations and Licensing: Gauteng, Mpumalanga, KwaZulu-Natal, Eastern Cape, Western Cape	Registration and IWULA Report compilation and follow up.
Glisa Coal Mine Water Treatment Plant: Belfast, Mpumalanga	IWULA/IWWMP compilation.

PROJECT	ROLE AND FUNCTIONS
Matla Colliery Water Treatment Plant: Kriel, Mpumalanga	Review of IWULA submitted, follow up and submission of outstanding information.
Assmang Dwarsrivier GN704 Exemption application: Steelpoort, Limpopo	GN704 inspection, compilation of exemption application.
TGME Glynn's Lydenburg and Rietfontein IWULA follow up: Lydenburg and White River	Follow up with the DWS and submission of additional information.
Magaliesberg Water, Brits, North West Province	WULA compilation.
P166/R40 Link Road WULA: Nelspruit, Mpumalanga Province	IWULA compilation and follow up with DWS.
Exxaro Glisa Colliery IWULA amendment: Belfast, Mpumalanga Province	IWULA and IWWMP compilation.
Gold Fields Centralised Tailings Storage Facility-Integrated Water Use Licence Application (IWULA), Carletonville, Gauteng Province	IWULA/IWWMP compilation.
Total Coal Forzando North IWULA separation and update: Bethal, Mpumalanga Province	IWULA amendment report compilation.
Assmang Chrome, Dwarsrivier Chrome Mine: Tailings Storage Facility: Steelpoort, Limpopo Province	Public consultation and IWUL compilation.
Namakwa Diamonds Water Use Licence Applications, Northern Cape: Various locations within the Northern Cape Province	IWULA compilation and follow up with DWS.
P166 Bypass Road: Water Use Licence Application: Nelspruit, Mpumalanga Province	IWULA compilation.
R40 Road upgrade Water Use Authorisation Application: Nelspruit, Mpumalanga Province	GA application report compilation.
Anglo Platinum Richmond Mine IWULA: Lydenburg, Limpopo Province	IWULA compilation.
Schamach Wildlife Estates: Water Use Authorisation Application: Modimolle, Limpopo Province	General authorisation application report compilation.
Due Diligence Assessment	
Assmang Beeshoek Mine Environmental Legal Gap Analysis: Beeshoek, Northern Cape Province	Environmental Due Diligence Assessment process and report compilation.
Lonmin Platinum Limpopo: Gap Analysis and Due Diligence Assessment: Lebowakgomo, Limpopo Province	Due diligence assessment and report compilation.
Other	
ArcelorMittal South Africa Vanderbijlpark Works Dam 10 and CETP Dams Remediation: Vanderbijlpark, Gauteng Province	Compilation of Remediation Alternatives Report.
ArcelorMittal South Africa- Dunswart Waste Site Remediation: Benoni, Gauteng Province	Site Remediation Alternatives Repot compilation.
Groundwater Information Project: KwaZulu-Natal	Review and capture borehole data and attend monthly feedback meetings with the DWS.

SACNASP

South African Council for Natural Scientific Professions

herewith certifies that

Renee Lynneil Steele

Registration Number: 008920

is a registered scientist

in terms of section 20(3) of the Natural Scientific Professions Act, 2003
(Act 27 of 2003)
in the following fields(s) of practice (Schedule 1 of the Act)

Environmental Science (Professional Natural Scientist)

Effective **23 October 2013** Expires **31 March 2024**

Chairperson

Chief Executive Officer

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Environmental Assessment Practitioners Association of South Africa

Registration No. 2022/4847

Herewith certifies that

Renee Lynneil Steele

is registered as an

Environmental Assessment Practitioner

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

Effective: 01 March 2023

Expires: 29 February 2024

Chairperson

Registrar

SAQA
SOUTH AFRICAN QUALIFICATIONS AUTHORITY

APPENDIX C: PUBLIC PARTICIPATION

Appendix C1 – Initial Notifications
Appendix C2 – Scoping PPP Pro-forma Notifications

Appendix C1

NOTIFICATION OF COMMENCEMENT OF ENVIRONMENTAL AUTHORISATION PROCESSES FOR KANGRA'S MAQUASA EAST OPERATIONS:

- **Application for Integrated Environmental Authorisation for the proposed Water Treatment Plant & Co-Disposal Facility**
- **Application for Integrated Water Use License for the proposed Water Treatment Plant & Co-Disposal Facility**

GCS Ref. No: 22-0161 **DMRE Ref. No.: MP30/5/1/2/2/133MR(10200MR)** **DWS Ref. No.: 11/W51B/CGI/4938**

Kangra Coal (Pty) Ltd (Kangra) has an existing coal mine located in Driefontein, near Piet Retief in the Mpumalanga Province. The mine is located in the Mkhondo Local Municipality within the Gert Sibande District Municipality. The Maquasa East (MQE) operations include the historical opencast and underground operations under Mining Right (MP)30/5/1/2/2/133MR(10200MR). Kangra is proposing to construct a new water treatment plant (WTP) for the treatment of decant and surplus contaminated water and a new co-disposal facility which will accommodate discard produced from the beneficiation plant, slurry/filter cake and potentially brine from the WTP.

Authorisation is being sought for the following:

- Integrated Environmental Authorisation in terms of the NEMA 2014 EIA Regulations for listed activities:
  - Listing Notice 1 (GNR327): Activity 25 & 27
  - Listing Notice 2 (GNR325): Activity 5 & 15
  - Listing Notice 3 (GNR324: Activity 12 & 14
  - Waste Management Activity (GNR921): Category B – Activity 7, 10 & 15
- Integrated Water Use License in terms of Section 21 of the NWA
  - Section 21 (c), (f), (g) & (i)
- SAHRA Authorisation in terms of Section 38 of the NHRA

The proposed projects are located on Ptn of Rem of Farm Maqausa 19IT, Ptn of Mineral Area 1 on the Rem extent of Farm Rooikop 18 HT, Ptns 1&2 of Farm Kransbank 15HT, Rem extent of Farm Maquasa 19HT, and Farm Roodekraal 21 HT, held under the existing Mining Right (MR). (Refer to the map below)

GCS Water and Environmental Consultants (Pty) Ltd has been appointed as the independent Environmental Assessment Practitioner to undertake the necessary environmental processes for the above-mentioned projects in support of the application to the relevant Competent Authorities; the Mpumalanga Department of Mineral Resources and Energy (DMRE), the Department of Water and Sanitation (DWS) and the Mpumalanga Department of Heritage Resources.

ISAZISO SOKUQALWA KOMGUDU WOKUGUNYAZWA KWANGOKWEMVELO KWEMISEBENZI ENGEKA KANGRA'S MAQUASA EAST

- **Ukufaka Isicelo Sokugunyazwa Kwangokwemvelo Okudidiyele okungokweSizinda Sokuhlanza Amanzi kanye Nesizinda Sokulahla Udoti Ohlukene**
- **Ukufaka Isicelo Semvume Edidiyele Yokusetshenziswa Kwamanzi engeyeSizinda esihlongozwayo Sokuhlanza Amanzi kanye Nesokulahla Udoti Ohlukene**

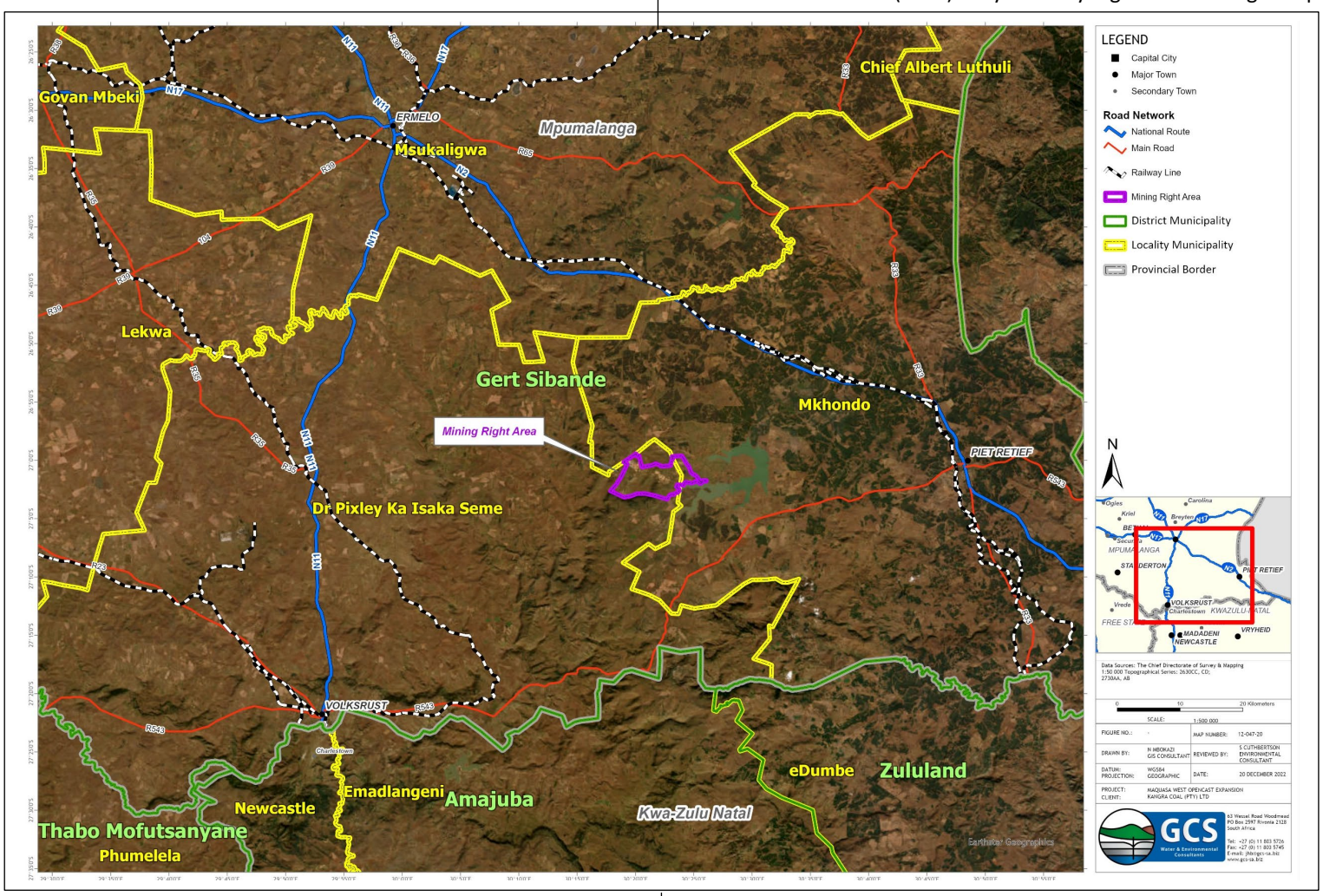
GCS Ref. No: 22-0161 **DMRE Ref. No.: MP30/5/1/2/2/133MR(10200MR)** **DWS Ref. No.: 11/W51B/CGI/4938**

U Kangra Coal (Pty) Ltd (Kangra) unemayini yamalahle evele ikhona esendaweni yase Driefontein, eduze kwase Piet Retief esiFundazweni saseMpumalanga. Imayini ikuMasipala uMkhondo ongaphansi kukaMasipala weSifunda iGert Sibande. Imisebenzi yeMaquasa East (MQE) ixuba ukumbiwa okuvulekile phezulu kanye nemisebenzi yokumba kuguduzwe emathunjini omhlaba ngaphansi kweLungelo Lokumbiwa Kwezimbiwa elingu (MP)30/5/1/2/2/133MR(10200MR). U Kangra uhlongoza ukwakha isizinda sokuhlanza amanzi (WTP) ukuze kuhlanzwe amanzi akhishiwe anukubezekile kanye nokwakha isizinda sokuwalahla esizokwazi ukwamukela amanzi angcolile akhiqizeka esuka esizindeni sokuhlunga, udaka oselome lwaqina kanye nosawotana ongaqhamuka kwi WTP.

Kudingeka ukugunyazwa kwalokhu okulandelayo:

- Ukugunyazwa Kwangokwemvelo Okudidiyele okumayelana neMigomo ye EIA ka 2014 engeye NEMA yalemisebenzi esohlwini:
  - Isaziso Esisohlwini 1 (GNR327): Umsebenzi 25 no 27
  - Isaziso Esisohlwini 2 (GNR325): Umsebenzi 5 no 15
  - Isaziso Esisohlwini 3 (GNR324: Umsebenzi 12 no 14
  - Umsebenzi Ongowokuphathwa Kodoti/Ukungcola (GNR921): Isigabana B – Umsebenzi 7, 10 no 15
- Imvume Edidiyele Yokusetshenziswa Kwamanzi ngokweSigaba 21 se NWA
  - Isigaba 21 (c), (f), (g) no (i)
- Ukugunyazwa yi SAHRA ngokweSigaba 38 se NHRA

Amaprojecti ahlongozwayo asendaweni u Ptn ye Rem yePulazi iMaqausa 19IT, engu Ptn yendawo iMineral Area 1 engeyengxenye ye Rem yePulazi iRookop 18 HT, kumaPtn 1 no 2 ePulazi iKransbank 15 HT, kwingxenye ye Rem engeyePulazi iMaquasa 19 HT, kanye nePulazi iRoodekraal 21 HT, elawulwa ngaphansi kweLungelo Lezimbiwa (MR) elivele likhona. (Bheka ebalazweni elingezansi)
U GCS Water and Environmental Consultants (Pty) Ltd uqashiwe njengoNgoti abazimele Bocwaningo Lwemvelo ukuze bezobhekana nemigudu ebalulekile yocwaningo lwemvelo lwalamaprojecti abalulwe ngenhla ukuze kuxhaseke isicelo esiya kwiZiphathimandla Ezifanele; eMnyangweni Wezamandla Nezimbiwa waseMpumalanga (DMRE), uMnyango WezaManzi Nendle (DWS) kanye noMnyango WezamaGugu eMpumalanga.



YOUR PARTICIPATION IS IMPORTANT

Interested and Affected Parties (I&APs) are invited to participate by registering your interest and to provide comments and raise issues of concern regarding the proposed projects. You have until the 10th of February 2023 to register as an I&AP in the first round of stakeholder engagement and to raise initial issues about the proposed project. Please include this reference number – 22-0161 – in all correspondence.

This notification forms part of the initial public consultation process as required by the National Environmental Management Act,1998 (Act 107 of 1998) (NEMA) EIA Regulations (2014, as amended) and the National Water Act, 1998 (Act 36 of 1998) (NWA). Further notifications pertaining to this project will be issued in due course.

To register as an I&AP and to receive more information please contact:
GCS (Pty) Ltd: Gerda Bothma / Anelle Lötter, Tel: 011 803 5726,
Email: gerdab@gcs-sa.biz / anellel@gcs-sa.biz,
Postal Address: PO Box 2597, Rivonia, Johannesburg, 2128

Publication Date: 20 January 2023

UKUBAMBA IQHAZA KWAKHO KUBALULEKILE

Amaqembu Abathintekayo Nabafisa Ukubambiqhaza (I&APs) ayamenywa ukuba abambe iqhaza ngokuthi abhalise iqhaza lawo nokuthi banikeze uvo lwabo futhi babeke izingqinamba ezibathintayo mayelana namaprojecti ahlongozwayo. Unesikhathi esingaye siyofika kumhlaka 10 February 2023 sokubhalisela ukuba yi I&AP emzukulwisaneni wokuqala wohlelo lokuxhumana nababambi beqhaza kanye nokuthi ubeke izingqinamba mayelana neprojecti ehlongozwayo. Uyacelwa ukuba ufake lenombolo engu – 22-0161 – kukhona konke ukuxhumana.

Lesisaziso siyinxenye yomgudu wokuqala wokuxhumana nomphakathi njengoba kudinga iMigomo ye EIA (ka 2014, njengoba ichitshiyelwe) yoMthetho kaZwelonke Wokuphathwa kweMvelo, ka 1998 (uMthetho 107 ka 1998) kanye noMthetho kaZwelonke Wamanzi, ka 1998 (uMthetho 36 ka 1998) (NWA). Ezinye izaziso ezimayelana naleprojecti zizokhishwa ngokuhamba kwesikhathi.

Ukuze ubhalise njenge I&AP nokuba uthole ulwazi oluthe thuthu uyacelwa ukuba uxhumane no:
GCS (Pty) Ltd: Gerda Bothma / Anelle Lötter, Ucingo: 011 803 5726,
I email: gerdab@gcs-sa.biz / anellel@gcs-sa.biz,
Ikheli: PO Box 2597, Rivonia, Johannesburg, 2128

UPDATED Emergency Numbers/ Noodnommers

Attached, please find the relevant contact numbers in case of an emergency/
Vind aangeheg noodnommers om te skakel in 'n noodgeval

Electricity/Elektrisiteit	082 804 1247
Water & Sanitation/Water & Sanitasie	076 063 0460
Stock Theft/Veediefstal	079 692 0610
Water Reticulation (Mkhondo and Satellite)	076 063 0460
Rural Water Supply	082 881 0447
Cemetery	073 498 9750/079 276 7339
Storm Water	073 498 9750/079 276 7339
Roads	079 276 7339
Fire and Rescue	071 331 8152/079 872 8989
Traffic Department/Verkeersdepartement	076 562 0956
Fire/Accident related Emergencies/ Brandweer en ongeluksverwante noodgevalle (English/Afrikaans)	079 872 8989
(Zulu)	071 331 8152
RH Piet Retief Private Hospital	017 826 9217
Casualties/Ongevalle	017 826 9208
Private Ambulance/Privaat Ambulans (ICU Care)	083 570 0911
Piet Retief Hospitaal (Staat)	017 824 1200
Piet Retief Police	017 824 2608
PR CSC (Community Service Centre)	072 286 8875
Provincial Ambulance/Provinsiale Ambulans	017 632 1875

Garden of Life

Consolidated Training Report Skills Programme

Overview:

The Proprietor of Heyshoop Farm in support of skills development funded the skills programme "Garden of Life" for unemployed individuals residing on his farms and in and around the Piet Retief area.

The programme targeted 40 individuals, all of which formed part of a group referred to as Historically Disadvantaged Individuals. They consisted of both male and females of various age groups. The aim was to develop agricultural skills and to empower them through agriculture to create sustainable micro farms.

Demographics:

The ratio being: 18 females to 15 males of various ages. The youth was well represented. None of the attending candidates indicated or displayed any disability.

Scope of Work:

The scope of work indicates the following:

• Skills Programmes must be relevant to learner needs.

• Must demonstrate initiatives around areas of empowerment.

Group Dynamics:

The group dynamics at first was strained but this was expected as these individuals all come from different environments. They however developed a bond as the day progressed and viewed themselves as a team. They further quickly settled and began working together for the benefit of the group.

Venue:

The venue to a certain extent complied with an Optimal Learning Environment as it had seating suitable for adult learning. The area was well lit and the training area was well ventilated. All support teaching aids were present and easily accessible. All Covid-19 protocols could be observed.

It must however be guarded that when choosing a venue that it must be learner friendly and accessible to the learner. Traveling long distances could impact on learner attendance and affect learner concentration.

Overview of training:

Training commenced at 09:00 and ended at 14:00 (15 January 2023).

Learners' needs and aspirations were identified. One of these needs was that a large percentage of the learners' mother-tongue (isi-Zulu) speakers and displayed little or no command of the English language. This was further amplified by them being semi-literate or illiterate.

This challenge was negated with the use of a Zulu speaking facilitator. To further assist the learning process the facilitator scaled down the presentation to meet the level of comprehension of these learners. This was done by using practical examples to reinforce and embed knowledge.

Myths and expectations around employment and financial reward were addressed and dispelled.

Learners at first were not enthusiastic and showed distress. This however is not uncommon with learners with low literacy levels. They however grasped concepts that were foreign to them on commencement of training. The constant asking of questions and lively debates was an indication that learning was taking place.

The following was provided during the training sessions:

• Writing materials & stationery
• White board & pens
• Flip chart paper
• Coke bottles
• Attendance registers
• Feedback forms
• Seeds
• Seedlings
• Planting calendars
• Bibles

Practical:

To supplement the theoretical component of the learners, they were further presented with one irrigation system (Hydroponics) (Garden of Life) as the practical component of their training.

Learners enjoyed the practical component of the training intervention as it involved activities they enjoyed.

They further demonstrated understanding of the concept of Hydroponics and its value. Environmental matters such as waste management were understood and they showed an interest in maintaining the environment and the impact it has on farming.

Exit Strategy:

Garden of Life and its team subscribe to a principle of Holistic Development and have designed a strategic exit plan for these learners. The process includes the replication of the gardens at home. It was recommended that they source at least 10 tyres per household within the area they reside in, to commence the establishing of the said gardens.

Garden of Life has further taken into consideration that although all the candidates have signed up for the training, not all will proceed in becoming micro farmers and would grow vegetables for their family's needs only.

In order to monitor and mentor these candidates a WhatsApp group (Buddy Group) will be established where the said learners could share challenges and milestones. This not only allows for monitoring participation but, also acts as a catalyst in motivating learners to continue. The Garden of Life team will further assist with challenges and will highlight milestones achieved.

They are to develop their gardens and produce evidence of a productive garden. Learners have also indicated that they will acquire land from known sources and start growing vegetables suitable for the environment.

Way Forward:

It is recommended that during the monitoring phase candidates who show an interest in agriculture should be afforded the opportunity in obtaining qualifications in Plant Production. This would give the candidate a greater understanding of agriculture as it provides the learner with the skills in producing a better crop.

Conclusion:

The training went smoothly and apart from small logistical hiccups, the programme was concluded successfully. This however is consistent with projects of this size and nature.

Commendation must further be given to Mr Tommy Ferreira who ensured that all logistics were in place and that learners arrived to the training at no cost to them. His efforts and organisational skills are greatly appreciated.

Our deepest sympathy

After the untimely deaths of another councillor and two more men who were most probably in the way, arrests have been made and court procedures followed.

The *Excelsior News* would like to express our condolences to the families who lost their loved ones and wishes them all of the best.

The *Excelsior News* will only publish reports from the SAPS in this matter and will not jeopardise any investigation through speculation.

May justice prevail. Injustice will automatically fall under its own weight and meet with its end.

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Update on N2 Pongola situation

Kate-Merie Ferreira

Protests on the N2 Pongola road rendered it inaccessible to heavy motor vehicles, more specifically side tippers from Monday 16 January to Monday 23 January but, the authorities seem to have control of the situation now.

On Monday 23 January at approximately 12:25, Mr Anton Nortje of the Mkhondo Fire and Rescue Unit shared a voice message stating that the road was open to side tippers once again, as a task force from the National Department of Transport was deployed to Itshelejuba, where the road had been closed to side tippers by protesters for a week. Motorists were warned that the situation could change at any moment and to be vigilant when driving there.

Provincial traffic officers were placed at the Paulpietersburg intersection, where truckers turn off the N2 to take an alternative route, to inform them that the N2 road was open to them again. Some transporters decided that it was not worth it to use the N2 and instructed their drivers to continue on the alternative route (Paulpietersburg, Vryheid, etc.). They did not want to be stuck at Itshelejuba if the situation turned volatile again.

Traffic officers also visited the local truck stop to inform the drivers of the situation, so that they can make an informed decision about which route to use.

The R33 Paulpietersburg road is taking strain under the weight of the hundreds of side tippers that are forced to drive there once again. The road has become almost untraversable for small vehicles and the damage on it is extensive yet, transporters feel they have no other choice but to use this route. They lose a lot of money if their trucks get stuck for a day between Piet Retief and Pongola. Hopefully the community, government and trucking companies can come to an agreement that will make the road safer for all who use it.

ANNEXURE 2

INVITATION FOR PUBLIC COMMENTS IN APPLYING FOR A LIQUOR LICENCE IN TERMS OF SECTION 35(2)(a) OF THE MPUMALANGA LIQUOR LICENSING ACT, 2006.
I, TANYA ELIZABETH GROBLER, ID Number: **970909 0098 085,** an adult female hereby invite written public comments concerning my application for a liquor licence to the Mpumalanga Liquor Authority to trade under the name: **THE DINER ON WEST END,** I make this application for myself**.**
For the retail sale of liquor for consumption on the premises where the liquor is sold.
BUSINESS PREMISES:
Physical Address: SHOP 2, CORNER OF WEST END AND RETIEF STREETS, PIET RETIEF, 2380 situated within the Mkhondo Local Municipality, being an address in the Republic of South Africa and within the borders of Mpumalanga Province.
Postal Address: PO Box 135, PIET RETIEF, 2380
Telephone Number: 076 138 7988
Cellphone Number: 076 138 7988
E-mail: info@liquoract.com
ADDRESSES TO WHICH COMMENTS MUST BE SUBMITTED:
Comments should be made in writing and be addressed to the municipality concerned and a copy to the applicant, to reach the said addresses within thirty (30) days of this publication.
Municipality's Address:
Mkhondo Municipality Piet Retief:
33 Mark & De Wet Streets, eMkhondo, 2380
Applicant's Address:
PO Box 3556, Ladysmith, 3370
E-mail: info@liquoract.com

Thank you to the Mkhondo Fire and Rescue

The Ndawonye principal, SMT and SGB would like to send words of gratitude to Anton Nortje and Mr Mkhabela from the Mkhondo Fire and Rescue Department for assisting the school with water.

"Always when we call, they respond as quickly as they can. Your continued support is always appreciated."

Ms MR Magagula
081866 9329

Thank you

Noluvo Minentle Godlimpi.

The Godlimpi family of eMagadeni Mkhondo wants to express its heartfelt appreciation for the love and support that the Methodist and Galilee Church in Christ showed us during the tragic and sad loss of their beloved daughter, Noluvo Minentle Godlimpi. We also thank the Godlimpi family, as well as the Xaba family and the entire Mkhondo family for their wonderful presence and support during the sad loss. May God richly bless you all and do continue to show your love to other families.

Parkrun results

Kate-Merie Ferreira

61 people took part in the Piet Retief Parkrun on Saturday 21 January on the gravel road next to Piet Retief High School.

The top 10 participants were:

1. Andre Vorster - 24:35
2. Tebogo Junior Ntuli - 27:03
3. Unknown
4. Mbongeni Thabede - 27:10
5. Unknown
6. Unknown
7. Pushie Chetty - 29:06
8. Unknown
9. Unknown
10 . Unknown

A gentle reminder to please register on the Parkrun website and take your barcode with you when you participate. That will ensure that the volunteers are able to capture your time and upload it to the website so that you can keep track of your fitness journey.

Thank you to the volunteers who made this event possible and to the loyal participants who keep this event going. Next time, feel free to invite a friend!

KANGRA

ISAZISO SOKUQALWA KOMGUDU WOKUGUNYAZWA KWANGOKWEMVELO KWEMISEBENZI ENGASEMPUMALANGA ENGEKA KANGRA'S MAQUASA:

- **Ukufaka Isicelo Sokugunyazwa Kwangokwemvelo Okudidiyele okungokweSizinda Sokuhlanza Amanzi kanye Nesizinda Sokulahla Udoti Ohlukene**
- **Ukufaka Isicelo Semvume Edidiyele Yokusetshenziswa Kwamanzi engeyeSizinda esihlongozwayo Sokuhlanza Amanzi kanye Nesokulahla Udoti Ohlukene**

GCS Ref. No.: 22-0161
DMRE Ref. No.: MP30/5/1/2/2/133MR (10200MR)
DWS REF. NO.: 11/W51B/CGI/4938

U Kangra Coal (Pty) Ltd (Kangra) unemayini yamalahle evele ikhona esendaweni yase Driefontein, eduze kwase Piet Retief esiFundazweni saseMpumalanga. Imayini ikuMasipala uMkhondo ongaphansi kukaMasipala weSifunda iGert Sibande. Imisebenzi yeMaquasa East (MQE) ixuba ukumbiwa okuvulekile phezulu kanye nemisebenzi yokumba kuguduzwe emathunjini omhlaba ngaphansi kweLungelo Lokumbiwa Kwezimbiwa elingu (MP)30/5/1/2/2/133MR(10200MR). U Kangra uhlongoza ukwakha isizinda sokuhlanza amanzi (WTP) ukuze kuhlanzwe amanzi akhishiwe anukubezekile kanye nokwakha isizinda sokuwalahla esizokwazi ukwamukela amanzi angcolile akhiqizeka esuka esizindeni sokuhlunga, udaka oselome lwaqina kanye nosawotana ongaqhamuka kwi WTP.

Kudingeka ukugunyazwa kwalokhu okulandelayo:

- **Ukugunyazwa Kwangokwemvelo Okudidiyele okumayelana neMigomo ye EIA ka 2014 engeye NEMA yalemisebenzi esohlwini:**
  - **Isaziso Esisohlwini 1 (GNR327): Umsebenzi 25 no 27**
  - **Isaziso Esisohlwini 2 (GNR325): Umsebenzi 5 no 15**
  - **Isaziso Esisohlwini 3 (GNR324: Umsebenzi 12 no 14**
  - **Umsebenzi Ongowokuphathwa Kodoti/Ukungcola (GNR921): Isigabana B - Umsebenzi 7, 10 no 15**
- **Imvume Edidiyele Yokusetshenziswa Kwamanzi ngokweSigaba 21 se NWA**
  - **Isigaba 21 (c), (f), (g) no (i)**
- **Ukugunyazwa yi SAHRA ngokweSigaba 38 se NHRA**

Amaprojecti ahlongozwayo asendaweni u Ptn ye Rem yePulazi iMaqausa 19 IT, engu Ptn yendawo iMineral Area 1 engeyengxenye ye Rem yePulazi iRookop 18 HT, kumaPtn 1 no 2 ePulazi iKransbank 15 HT, kwingxenye ye Rem engeyePulazi iMaquasa 19 HT, kanye nePulazi iRoodekraal 21 HT, elawulwa ngaphansi kweLungelo Lezimbiwa (MR) elivele likhona.

U GCS Water and Environmental Consultants (Pty) Ltd uqashiwe njengoNgoti abazimele Bocwaningo Lwemvelo ukuze bezobhekana nemigudu ebalulekile yocwaningo lwemvelo lwalamaprojecti abalulwe ngenhla ukuze kuxhaseke isicelo esiya kwiZiphathimandla Ezifanele; eMnyangweni Wezamandla Nezimbiwa waseMpumalanga (DMRE), uMnyango WezaManzi Nendle (DWS) kanye noMnyango WezamaGugu eMpumalanga.

Amaqembu Abathintekayo Nabafisa Ukubambiqhaza (I&APs) ayamenywa ukuba abambe iqhaza ngokuthi abhalise iqhaza lawo nokuthi banikeze uvo lwabo futhi babeke izingqinamba ezibathintayo mayelana namaprojecti ahlongozwayo. Unesikhathi esingaye siyofika kumhlaka 10 February 2023 sokubhalisela ukuba yi I&AP emzukulwisaneni wokuqala wohlelo lokuxhumana nababambi beqhaza kanye nokuthi ubeke izingqinamba mayelana neprojecti ehlongozwayo. Uyacelwa ukuba ufake lenombolo engu – 22-0161 – kukhona konke ukuxhumana.

Lesisaziso siyinxenye yomgudu wokuqala wokuxhumana nomphakathi njengoba kudinga iMigomo ye EIA (ka 2014, njengoba ichitshiyelwe) yoMthetho kaZwelonke Wokuphathwa kweMvelo, ka 1998 (uMthetho 107 ka 1998) kanye noMthetho kaZwelonke Wamanzi, ka 1998 (uMthetho 36 ka 1998) (NWA). Ezinye izaziso ezimayelana naleprojecti zizokhishwa ngokuhamba kwesikhathi

Ukuze ubhalise njenge I&AP nokuba uthole ulwazi oluthe thuthu uyacelwa ukuba uxhumane no:

GCS Pty Ltd
GCS Reference: 22-0161
Okuxhunyanwa naye: Gerda Bothma/Anelle Lötter,
Ucingo: 011 803 5726,
E-mail: gerdab@gcs-sa.biz/anellel@gcs-sa.biz
Iposi: PO Box 2597, Rivonia, Johannesburg, 2128

GCS Water & Environmental Consultants

Appendix C2

NOTIFICATION OF COMMENCEMENT OF ENVIRONMENTAL AUTHORISATION PROCESSES FOR KANGRA'S MAQUASA EAST OPERATIONS:

- **Application for Integrated Environmental Authorisation for the proposed Water Treatment Plant & Co-Disposal Facility**
- **Application for Integrated Water Use License for the proposed Water Treatment Plant & Co-Disposal Facility**

GCS Ref. No: 22-0161 **DMRE Ref. No.: MP30/5/1/2/2/133MR(10200MR)** **DWS Ref. No.: 11/W51B/CGI/4938**

Kangra Coal (Pty) Ltd (Kangra) has an existing coal mine located in Driefontein, near Piet Retief in the Mpumalanga Province. The mine is located in the Mkhondo Local Municipality within the Gert Sibande District Municipality. The Maquasa East (MQE) operations include the historical opencast and underground operations under Mining Right (MP)30/5/1/2/2/133MR(10200MR). Kangra is proposing to construct a new waste water treatment plant (WWTP) for the treatment of decant and surplus contaminated water and a new co-disposal facility which will accommodate discard produced from the beneficiation plant, slurry/filter cake and potentially brine from the WWTP.

Authorisation is being sought for the following:

- Integrated Environmental Authorisation in terms of the NEMA 2014 EIA Regulations for listed activities:
  - Listing Notice 1 (GNR327): Activity 25 & 27
  - Listing Notice 2 (GNR325): Activity 5 & 15
  - Listing Notice 3 (GNR324: Activity 12 & 14
  - Waste Management Activity (GNR921): Category B – Activity 7, 10 & 15
- Integrated Water Use License in terms of Section 21 of the NWA
  - Section 21 (a), (c), (f), (g) & (i)
- SAHRA Authorisation in terms of Section 38 of the NHRA

The proposed projects are located on the Remaining extent (RE) of Farm Roodekraal 21 HT, RE of Farm Rooikop 18 HT, RE of Farm Maquasa 19HT, and Farm Roodekraal 21 HT, held under the existing Mining Right (MR). (Refer to the map below)

GCS Water and Environmental Consultants (Pty) Ltd has been appointed as the independent Environmental Assessment Practitioner to undertake the necessary environmental processes for the above-mentioned projects in support of the application to the relevant Competent Authorities; the Mpumalanga Department of Mineral Resources and Energy (DMRE), the Department of Water and Sanitation (DWS) and the Mpumalanga Department of Heritage Resources.

ISAZISO SOKUQALWA KOMGUDU WOKUGUNYAZWA KWANGOKWEMVELO KWEMISEBENZI ENGASEMPUMALANGA YEMAQUASA ENGEKAKANGRA:

- **Ukufaka Isicelo Sokugunyazwa Kwangokwemvelo Okudidiyele okungokweSizinda Sokuhlanza Amanzi kanye Nesizinda Sokulahla Udoti Ohlukene**
- **Ukufaka Isicelo Semvume Edidiyele Yokusetshenziswa Kwamanzi engeyeSizinda esihlongozwayo Sokuhlanza Amanzi kanye Nesokulahla Udoti Ohlukene**

GCS Ref. No: 22-0161 **DMRE Ref. No.: MP30/5/1/2/2/133MR(10200MR)** **DWS Ref. No.: 11/W51B/CGI/4938**

UKangra Coal (Pty) Ltd (Kangra) unemayini yamalahle evele ikhona esendaweni yase Driefontein, eduze kwasePiet Retief esiFundazweni saseMpumalanga. Imayini ikuMasipala uMkhondo ongaphansi kukaMasipala weSifunda iGert Sibande. Imisebenzi yeMaquasa East (MQE) ixuba ukumbiwa okuvulekile phezulu kanye nemisebenzi yokumba kuguduzwe emathunjini omhlaba ngaphansi kweLungelo Lokumbiwa Kwezimbiwa elingu (MP)30/5/1/2/2/133MR(10200MR). UKangra uhlongoza ukwakha isizinda sokuhlanza amanzi angcolile (WWTP) ukuze kuhlanzwe amanzi akhishiwe anukubezekile kanye nokwakha isizinda sokuwalahla esizokwazi ukwamukela amanzi angcolile akhiqizeka esuka esizindeni sokuhlunga, udaka oselome lwaqina kanye nosawotana ongaqhamuka kwiWWTP.

Kudingeka ukugunyazwa kwalokhu okulandelayo:

- Ukugunyazwa Kwangokwemvelo Okudidiyele okumayelana neMigomo yeEIA ka2014 engeyeNEMA yalemisebenzi esohlwini:
  - Isaziso Esisohlwini 1 (GNR327): Umsebenzi 25 no 27
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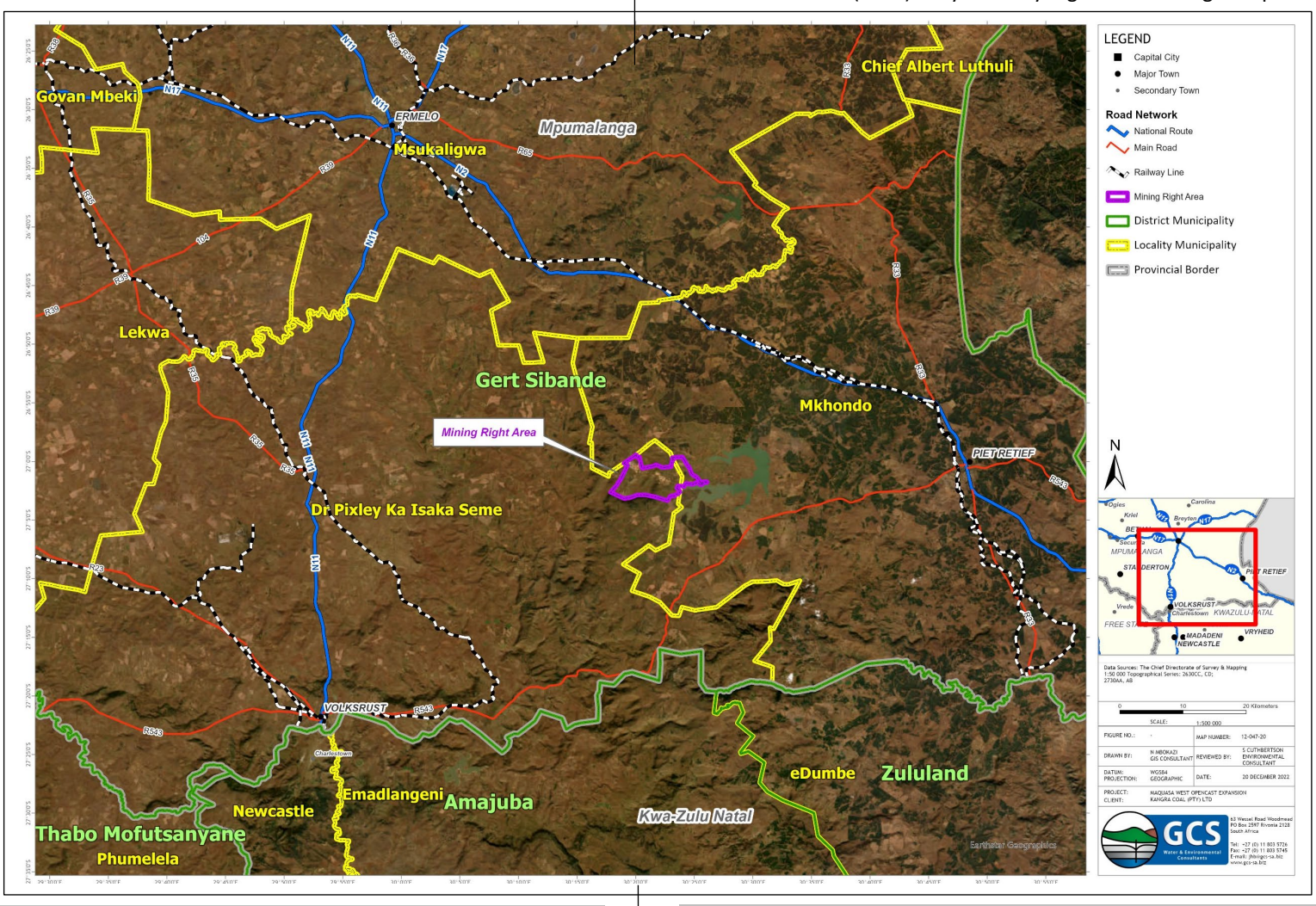
- Imvume Edidiyele Yokusetshenziswa Kwamanzi ngokweSigaba 21 se NWA
  - Isigaba 21 (a), (c), (f), (g) no (i)
- Ukugunyazwa yi SAHRA ngokweSigaba 38 se NHRA

Amaprojecti ahlongozwayo atholakala endaweni esele yePulazi iRoodekraal 21 HT, yeRem yePulazi iRooikop 18 HT, yeRem yePulazi Maquasa 19HT, kanye nePulazi Roodekraal 21 HT, elawulwa ngaphansi kweLungelo Lezimbiwa (MR) elivele likhona. (Bheka ebalazweni elingezansi)

IGCS Water and Environmental Consultants (Pty) Ltd uqashiwe njengoNgoti abazimele Bocwaningo Lwemvelo ukuze bezobhekana nemigudu ebalulekile yocwaningo lwemvelo lwalamaprojecti abalulwe ngenhla ukuze kuxhaseke isicelo esiya kwiZiphathimandla Ezifanele; eMnyangweni Wezamandla Nezimbiwa waseMpumalanga (DMRE), uMnyango WezaManzi Nendle (DWS) kanye noMnyango WezamaGugu eMpumalanga.



YOUR PARTICIPATION IS IMPORTANT

Interested and Affected Parties (I&APs) are invited to participate by registering your interest and to provide comments and raise issues of concern regarding the proposed project.

DRAFT SCOPING REPORT IS AVAILABLE FOR PUBLIC COMMENT FROM 24 NOVEMBER 2023 TO 16 JANUARY 2024

The Draft Scoping Report is available as follows:

Printed Copies: Piet Retief Library, 10B Retief Street, Piet Retief
Maquasa East Security Office, Maquasa East Mine, Driefontein
Thusong Service Centre, Driefontein Community

Electronic Copy: https://www.gcs-sa.biz/public-documents/

For a copy of a Background Information Document or the Draft Scoping Report and to register as an Interested and Affected Party, please contact:
GCS (Pty) Ltd: Gerda Bothma; Tel: 011 803 5726; Email: gerdab@gcs-sa.biz;
Postal Address: PO Box 2597, Rivonia, Johannesburg, 2128

Publication Date: 23 November 2023

UKUBAMBA IQHAZA KWAKHO KUBALULEKILE

Amaqembu Abathintekayo Nabafisa Ukubambiqhaza (I&APs) ayamenywa ukuba abambe iqhaza ngokuthi abhalise iqhaza lawo nokuthi banikeze uvo lwabo futhi babeke izingqinamba ezibathintayo mayelana namaprojecti ahlongozwayo.

UMBIKO WOKULUNGA KWESIKOPI UYATHOLAKALA UKUZE UPHAWULE UMPHAKATHI KUSUKA 24 NOVEMBER 2023 UKUYA KU-16 JANUARY 2024

Umbiko weSikophu Osalungiswa utholakala kanjena:

Amakhophi Aphrintiwe: Piet Retief Library, 10B Retief Street, Piet Retief
Maquasa East Security Office, Maquasa East Mine, Driefontein
Thusong Service Centre, Driefontein Community

Ikhophi ye-elekthronikhi: https://www.gcs-sa.biz/public-documents/

Ukuze uthole ikhophi yoMqulu woLwazi lweseNdlalelo noma uMbiko osaLungiswa wesiKophu nokuuthi ubhalise Njengomuntu Onentshisekelo Nothintekayo, sicela uthinte :
GCS (Pty) Ltd: Gerda Bothma; Ucingo: 011 803 5726; I email: gerdab@gcs-sa.biz;
Ikheli: PO Box 2597, Rivonia, Johannesburg, 2128

(Pro-forma)

NOTIFICATION OF COMMENCEMENT OF ENVIRONMENTAL AUTHORISATION PROCESSES FOR KANGRA'S MAQUASA EAST OPERATIONS:

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- **Application for Integrated Water Use License for the proposed Water Treatment Plant & Co-Disposal Facility**

GCS Ref. No: 22-0161 DMRE Ref. No.: MP30/5/1/2/2/133MR (10200MR) DWS REF. NO.: 11/W51B/CGI/4938

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  - **Section 21 (c), (f), (g) & (i)**
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Interested and Affected Parties are invited to participate by providing written comments and raising issues of concern

(Pro-forma)

ISAZISO SOKUQALWA KOMGUDU WOKUGUNYAZWA KWANGOKWEMVELO KWEMISEBENZI ENGASEMPUMALANGA ENGEKA KANGRA'S MAQUASA:

- **Ukufaka Isicelo Sokugunyazwa Kwangokwemvelo Okudidiyele okungokweSizinda Sokuhlanza Amanzi kanye Nesizinda Sokulahla Udoti Ohlukene**
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GCS Ref. No: 22-0161 DMRE Ref. No.: MP30/5/1/2/2/133MR (10200MR) DWS REF. NO.: 11/W51B/CGI/4938

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Amaprojecti ahlongozwayo atholakala endaweni esele yePulazi iRoodekraal 21 HT, yeRem yePulazi iRooikop 18 HT, yeRem yePulazi Maquasa 19HT, kanye nePulazi Roodekraal 21 HT, elawulwa ngaphansi kweLungelo Lezimbiwa (MR) elivele likhona.

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Umbiko weSikophu Osalungiswa utholakala kanjena:

Amakhophi Aphrintiwe	
Piet Retief Library, 10B Retief Street, Piet Retief	Maquasa East Security Office, Maquasa East Mine, Driefontein
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Ikhophi ye-elekthronikhi	
Ukulanda lwebhusayithi	https://www.gcs-sa.biz/public-documents/

Ukuze uthole ikhophi yoMqulu Wolwazi Lwesendlalelo noma uMbiko Osalungiswa Wesikophu futhi ubhalise Njengomuntu Onentshisekelo Nothintekayo, sicela uthinte:

GCS Pty Ltd; Gerda Bothma; Ucingo: 011 803 5726; Email gerdab@gcs-sa.biz; noma Iposi: PO Box 2597, Rivonia, Johannesburg, 2128

Abanentshisekelo Nabathintekayo bayamenywa ukuthi babambe iqhaza ngokunikeza imibono ebhaliwe futhi baveze izinto ezibakhathazayo.