

Newcastle Coal Project

**Mining Right Application over various Portions of the
Farms Craig No 2989-HS, Glen Ashton No 8589-HS,
Harwarden No 8915-HS, Waterfall No 3335-HS and
Dumblane No 3317-HS.**

Kwa-Zulu Natal Province

Scoping Report

Issued for Public Comment

Reference Number: KZN30/5/1/2/2/10122MR

26 April 2023

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Executive Summary

The prospecting rights for coal over KZN30/5/1/1/37PR affects Portions of the Farms Craig No 2989-HS, Glen Ashton No 8589-HS, Harwarden No 8915-HS, Waterfall No 3335-HS and Dumblane No 3317-HS, west of Newcastle in the KwaZulu-Natal Province. The Prospecting Right is being transferred to Minetek Resources (Pty) Ltd (Minetek, or “the Applicant” hereafter) in terms of Section 11 of the Mineral and Petroleum Resources Development Act, Act 28 of 2002 (MPRDA). Minetek have applied to graduate the prospecting right to a mining right.

Mining is proposed to include both surface (open pit) and underground mining. The proposed surface mining and associated infrastructure will be limited to portions of the remaining extent and portion 1 of the Farm Craig 2989-HS, Mineral Area 1 on the remainder of portion 4 of the Farm Waterfall 3335HS and Portion 1 of the Farm Waterfall 3335-HS, with the remaining farms earmarked for future underground mining.

Surface mining will involve open pit rollover mining with progressive rehabilitation using standard mine equipment and machinery. Blasting is expected to be required. Mineral Processing on-site will be limited to crushing, screening and sorting, whereafter product coal will be loaded and trucked off-site for further processing at other facilities, or to market. The use of conveyors for coal transport is also being considered.

The proposed project involves the undertaking of Listed Activities identified in the Environmental Impact Assessment (EIA) Regulations, 2014 (as amended) and as such requires an Environmental Authorisation in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) before being undertaken.

The Project also involves the establishment of overburden dumps, identified in the List of Waste Management Activities that have, or are likely to have detrimental impacts on the environment (GN R 921 as amended) and requires a Waste Management License before being undertaken.

The competent authority for the abovementioned applications, and the Mining Right Application in terms of Section 22 of the Mineral and Petroleum Resources Development Act, 2002 (Act No 28 of 2002), is the Department of Mineral Resources and Energy (DMRE).

This report is the Scoping Report, prepared in terms of Regulation 21 and Appendix 2 of the EIA Regulations, and is made available for a public comment period of 30 days, as part of the application process for Environmental Authorisation. Following the comment period, this report will be updated with all comments received and submitted to the DMRE for consideration. Once the DMRE approves the Scoping Report and associated plan of study for EIA (Section 9 of this report), the EIA phase will commence and further studies and public consultation will be undertaken.

At this early stage of project evaluation, the following key potential impacts associated with the Project have been identified:

- Loss / degradation or sensitive habitats or sensitive species found on the site, inclusive of flora and fauna species;
- Loss of agricultural land and reduced land capability;
- Surface water quality deterioration;

- Reduced surface water volumes reporting to downstream environments;
- Groundwater quality and quantity (availability) impacts;
- Visual impacts, alteration of sense of place;
- Increased dust, emissions and noise;
- Increased traffic, with associated road quality deterioration and road safety impacts;
- Impacts to heritage resources that have been identified on the site;
- Positive socio-economic impacts from job creation; and
- Negative socio-economic impacts on existing agricultural and tourism businesses on and surrounding the Project site.

A preliminary assessment of impact significance, and identification of measures that could reduce the likelihood or significance of the identified impacts, are included in Section 7.10 of this report.

This Scoping Report is issued for Public Review and Comment. This Scoping Report was prepared according to the provisions of the NEMA and EIA Regulations and aims to:

- identify the relevant policies and legislation relevant to the proposed project (Section 3);
- motivate the need and desirability of the proposed project and the proposed project site (Section 4);
- assess alternatives to the proposed project and proposed project site (Section 5);
- identify the key issues to be addressed in the EIA phase (Section 8.2);
- agree on the level of assessment to be undertaken, including the methodology to be applied, the expertise required as well as the extent of further consultation to be undertaken to determine the impacts and risks the activity will impose on the preferred site through the life of the activity (Section 9);
- identify possible measures to avoid, manage or mitigate identified impacts and determine the extent of the residual risks that need to be managed and monitored (Section 8.2).

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ACRONYMS AND ABBREVIATIONS

ACRONYM:	DESCRIPTION:
ADM	Amajuba District Municipality
AEL	Atmospheric Emissions License
BBBEE	Broad-Based Black Economic Empowerment
BID	Background Information Document
CARA	Conservation of Agricultural Resources Act, 1983 (Act No 43 of 1983)
CBA	Critical Biodiversity Area
DEA	Department of Environmental Affairs (now the Department of Forestry, Fisheries and Environment, DFFE)
DMRE	Department of Mineral Resources and Energy
DMS	Dense-medium separation
DWS	Department of Water and Sanitation (formerly Department of Water Affairs and Forestry, DWAF)
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EAPASA	Environmental Assessment Practitioner's Association of South Africa
EIA	Environmental Impact Assessment
EIS	Ecological Importance and Sensitivity
EMF	Environmental Management Framework
EMP	Environmental Management Plan
EMPr	Environmental Management Programme
ESA	Ecological Support Area
GHG	Greenhouse Gas
GN R	Government Notice Regulation
Ha	Hectares
HGM	Hydro-geomorphic
HR	Human Resources
HSE	Health, Safety and Environment
I&APs	Interested and Affected Parties
IDP	Integrated Development Plan
IUAs	Integrated Units of Analysis
IWULA	Integrated Water Use License Application
LoM	Life of Mine

ACRONYM:	DESCRIPTION:
MAE	Mean Annual Evaporation
mamsl	metres above mean sea level
MAP	Mean Annual Precipitation
MAT	Mean Annual Temperature
MHSA	Mine Health and Safety Act, 1996 (Act No. 29 of 1996)
MPRDA	Mineral and Petroleum Resources Development Act, 2002 (Act No 28 of 2002)
MRM	Mineral Resource Manager
MSDS	Material Safety Data Sheet
mtpa	million tons per annum
NAAQS	National Ambient Air Quality Standards, GN R 1210 of 2009
NAEIS	National Atmospheric Emissions Information System
NCP	Newcastle Coal Project
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEMAQA	National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004)
NEMBA	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)
NEMPAA	National Environmental Management: Protected Areas Act, 2003 (Act No 57 of 2003)
NEMWA	National Environmental Management Waste Act, 2008 (Act No. 59 of 2008)
NFEPA	National Freshwater Ecosystem Priority Areas
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
NLM	Newcastle Local Municipality
NPAES	National Protected Area Expansion Strategy
PCD	Pollution Control Dam
PES	Present Ecological State
PPP	Public participation process
PV	Photovoltaic
RDM	Resource Directed Measures
RoM	Run of Mine
RQO	Resource Quality Objectives
SACNASP	South African Council for Natural Scientific Professions
SAHRA	South African Heritage Resources Agency
SALA	Subdivision of Agricultural Land Act, 1970 (Act 70 of 1970)
SANS	South African National Standard
SCC	Species of Conservation Concern

ACRONYM:	DESCRIPTION:
SDF	Spatial Development Framework
SLP	Social and Labour Plan
SPLUMA	Spatial Land Use and Management Act, 2013 (Act No. 16 of 2013)
WMA	Water Management Area
WML	Waste Management License

Key Information relevant to the Proposed Project

Aspect	Description
The applicant	Minetek Resources (Pty) Ltd
Project Name	Newcastle Coal Project
Activity description	The proposed Project involves the open pit mining and future underground mining of coal, and associated infrastructure including stockpiles, haul roads, central infrastructure area and supporting services, stormwater management infrastructure and coal processing facilities comprising crushing, screening and sorting plants.
Project location	The Project is located over portions of the Farms Craig No 2989-HS, Glen Ashton No 8589-HS, Harwarden No 8915-HS, Waterfall No 3335-HS and Dumblane No 3317-HS, Kwa-Zulu Natal Province.
Central Coordinates	27°45'34.23"S; 29°50'32.88"E
Size (footprint) of the proposed Project	The Prospecting Right Area (which is the subject of the application for a Mining Right) comprises in total approximately 3,269 hectares (Ha). Affected surface areas will not exceed 600 Ha.
Environmental Assessment Practitioner (EAP) where comments can be submitted and more information obtained	Cabanga Environmental Contact Person: Lelani Claassen lelani@cabangaenvironmental.co.za Telephone: 011 794 7539 Fax: 011 794 6946

Undertaking by the EAP

I, Lelani Claassen, herewith confirm:

- That the information provided in this report are to the best of my knowledge true and correct;
- That comments and inputs from stakeholders and interested and affected parties that have been communicated to Cabanga Environmental, have been included in this report;

This report is being made available for a public comment period of 30 days. After receipt of comments from the Public, I will be in a position to comment on the level of agreement between the EAP and interested and affected parties on the plan of study for undertaking the environmental impact assessment.

I further declare that –

- I act as the independent environmental practitioner in this application;
- 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 have no, and will not engage in, conflicting interests in the undertaking of the activity. 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;
- there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting EIAs, including knowledge of the relevant Acts, Regulations and any guidelines that have relevance to the proposed activity;
- 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;
- I will ensure that participation by I&APs is facilitated so that all I&APs will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced for the application. I will keep a register of I&APs and ensure that the comments of all I&APs are recorded in reports that are submitted to the competent authority in respect of the application, provided that comments that are made by I&APs in respect of a final report may be attached to the report without further amendment to the report; and
- I realise that a false declaration is an offence and is punishable by law.

Signature of the EAP:

Date:

1 Introduction

The Newcastle Coal Project (“NCP” or “the Project” hereafter) consists of a Prospecting Right for Coal over various Farms west of Newcastle, comprising in total approximately 3,250 hectares (Ha). The Prospecting Right area has been extensively studied by third parties.

The Prospecting Right KZN30/5/1/1/37PR was originally held by Ingwe Collieries Limited, the Environmental Management Plan (EMP) was approved in terms of Section 39 of the Mineral and Petroleum Resources Development Act, 2002 (Act No 28 of 2002) (MPRDA) in August 2014, and the Right was registered in the Mineral and Petroleum Titles Registration Office in January 2016. Ingwe Collieries Limited changed its name to BHP Billiton Energy Coal South Africa (Pty) Ltd, who later changed their name to South32 SA Coal Holdings (Pty) Ltd, who in turn changed their name to Seriti Power (Pty) Ltd.

Application has been lodged to transfer 37PR from Seriti Power to Minetek Resources (Pty) Ltd (The Applicant) in terms of Section 11 of the MPRDA.

The 37PR will remain valid until 25 June 2023 (unless cancelled or suspended in terms of Section 47 of the MPRDA). Following the evaluation of favourable prospecting results, the Applicant (Minetek) is applying to graduate their prospecting right to a mining right. The Mining Right Application was submitted on 26 April 2023 (Reference Number KZN30/5/1/2/2/10122MR).

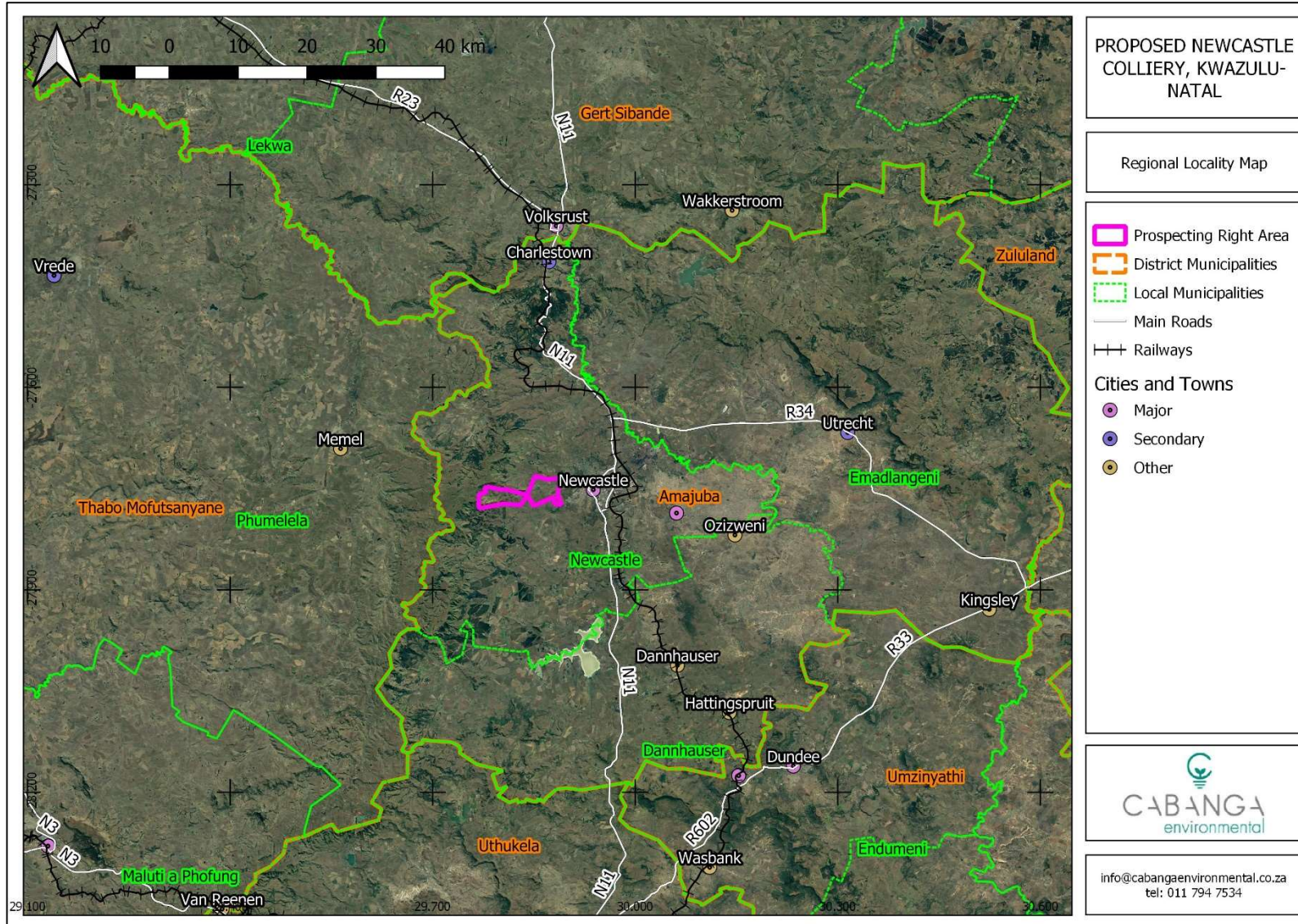
Section 22(1) of the MPRDA states that “Any person who wishes to apply to the Minister for a mining right must simultaneously apply for an environmental authorisation” (in terms of the National Environmental Management Act, 1998 (Act No 107 of 1998) (NEMA) and the Environmental Impact Assessment (EIA) Regulations, 2014 (as amended).

On 26 April 2023 the Applicant submitted an Application for a Mining Right, and an Application for Environmental Authorisation to the Department of Mineral Resources and Energy (DMRE) as the competent authority in terms of the MPRDA, and the NEMA insofar as an application relates to mining activity. Please see Appendix E for proof of the Applications, and Appendix D for details on the pre-application consultation undertaken with the DMRE.

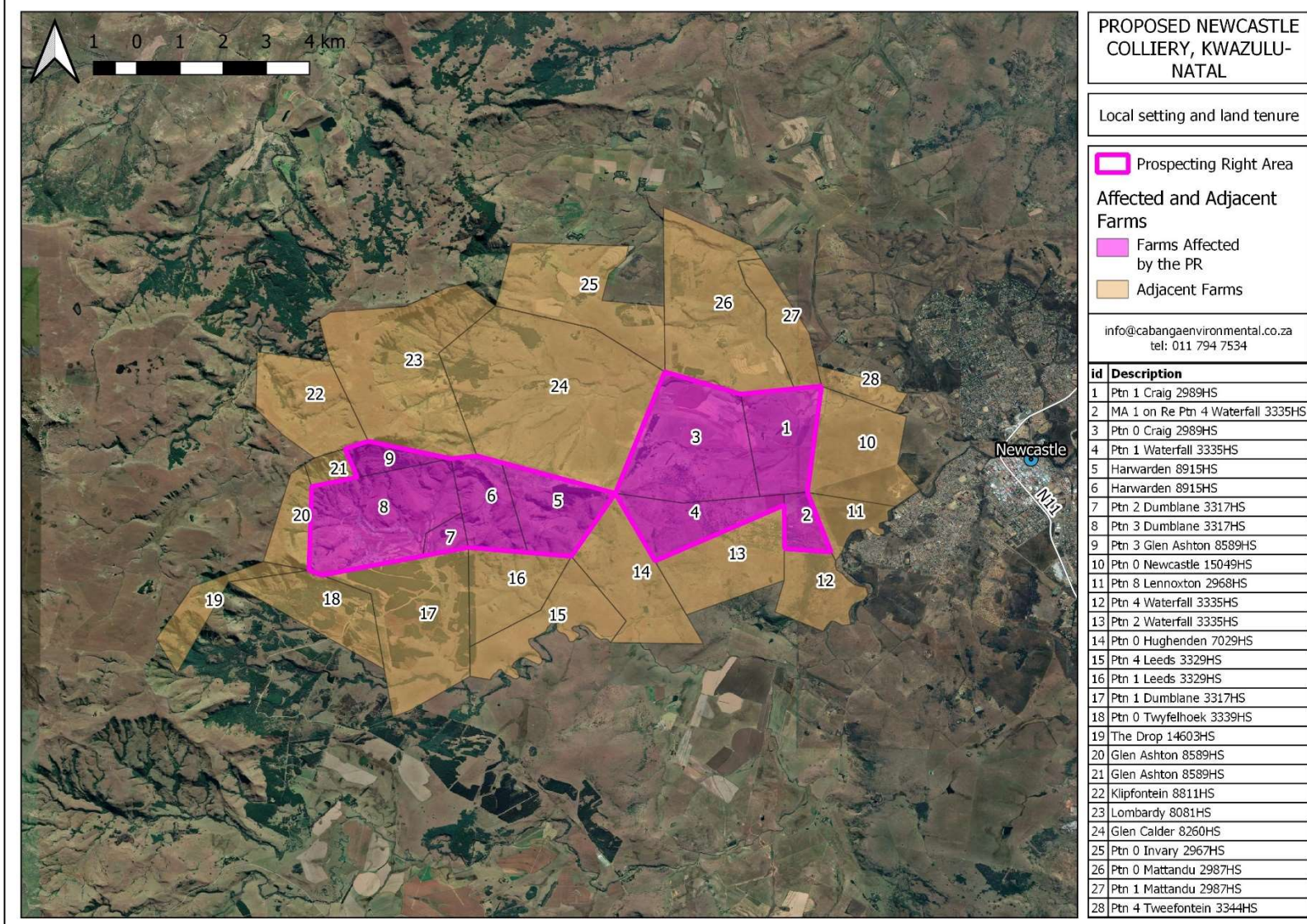
The Regional Location and local context of the Project are illustrated in Plan 1 and Plan 2.

This report is the Scoping Report, prepared in terms of Regulation 21 and Appendix 2 of the Environmental Impact Assessment (EIA) Regulations, and is made available for a public comment period of 30 days, as part of the application process for Environmental Authorisation (and Mining Right).

Following the comment period, this report will be updated with all comments received and submitted to the DMRE for consideration. Once the DMRE approves the Scoping Report and associated plan of study for the EIA (Section 9 of this report), the EIA phase will commence and further studies and public consultation will be undertaken.



Plan 1: Regional Location of the proposed Newcastle Coal Project



PROPOSED NEWCASTLE COLLIERY, KWAZULU-NATAL

Local setting and land tenure

- Prospecting Right Area
- Affected and Adjacent Farms**
- Farms Affected by the PR
- Adjacent Farms

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id	Description
1	Ptn 1 Craig 2989HS
2	MA 1 on Re Ptn 4 Waterfall 3335HS
3	Ptn 0 Craig 2989HS
4	Ptn 1 Waterfall 3335HS
5	Hanwarden 8915HS
6	Hanwarden 8915HS
7	Ptn 2 Dumblane 3317HS
8	Ptn 3 Dumblane 3317HS
9	Ptn 3 Glen Ashton 8589HS
10	Ptn 0 Newcastle 15049HS
11	Ptn 8 Lennoxton 2968HS
12	Ptn 4 Waterfall 3335HS
13	Ptn 2 Waterfall 3335HS
14	Ptn 0 Hughenden 7029HS
15	Ptn 4 Leeds 3329HS
16	Ptn 1 Leeds 3329HS
17	Ptn 1 Dumblane 3317HS
18	Ptn 0 Twyfelhoek 3339HS
19	The Drop 14603HS
20	Glen Ashton 8589HS
21	Glen Ashton 8589HS
22	Klipfontein 8811HS
23	Lombardy 8081HS
24	Glen Calder 8260HS
25	Ptn 0 Invary 2967HS
26	Ptn 0 Mattandu 2987HS
27	Ptn 1 Mattandu 2987HS
28	Ptn 4 Tweefontein 3344HS

Plan 2: Local Context of the Newcastle Coal Project

1.1 Structure of the Report

The required content of a Scoping Report is prescribed in Appendix 2 of the EIA Regulations, 2014 (as amended). Table 1 presents these requirements and provides cross-references to the various sections of this report where the requirements are addressed.

Table 1: Structure of the Scoping Report

No	Requirement	Section of report
1	A scoping report must contain the information that is necessary for a proper understanding of the process, informing all preferred alternatives, including location alternatives, the scope of the assessment, and the consultation process to be undertaken through the environmental impact assessment process, and must include:	
(a)	details of— (i) the Environmental Assessment Practitioner (EAP) who prepared the report; and (ii) the expertise of the EAP, including a curriculum vitae;	Section 1.2
(b)	the location of the activity, including— (i) the 21-digit Surveyor General code of each cadastral land parcel; (ii) where available, the physical address and farm name; (iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	Section 2.2
(c)	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;	Plan 3 and Section 2.2
(d)	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 and 2.4
(e)	a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process;	Section 3
(f)	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
(g)	a full description of the process followed to reach the proposed preferred activity, site and location of the development footprint within the site, including— (i) details of all the alternatives considered;	Section 5
(g)	(ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;	Section 6 and Appendix C.

No	Requirement	Section of report
	(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;	
(g)	(iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Section 7
(g)	(v) the impacts and risks which have informed the identification of each alternative, including the nature, significance, consequence, extent, duration and probability of such identified impacts, including the degree to which these impacts— (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated;	Section 8.2
(g)	(vi) the methodology used in identifying and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;	Section 8.1
(g)	(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 8.2
(g)	(viii) the possible mitigation measures that could be applied and level of residual risk;	Section 8.2
(g)	(ix) the outcome of the site selection matrix;	Section 5
(g)	(x) if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and	N/A, See Section 5
(g)	(xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity;	Section 10.1
(h)	A plan of study for undertaking the environmental impact assessment process to be undertaken, including: <ul style="list-style-type: none"> (i) a description of the alternatives to be considered and assessed within 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; 	Section 9

No	Requirement	Section of report
	(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.	
(i)	An undertaking under 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 or affected parties;	Page xiii
(j)	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;	Page xiii
(k)	where applicable, any specific information required by the competent authority	None
(l)	any other matter required in terms of section 24(4)(a) and (b) of the Act.	Section 10.1

1.2 Details of the EAP

The details of the persons who prepared this report are provided in Table 2.

Table 2: Details of the Author

Author and EAP	Lelani Claassen
Highest qualification	BSc Hons Environmental Management
Years' experience	12+ years
Professional registration	Registered Environmental Assessment Practitioner (EAP) with the Environmental Assessment Practitioner's Association of South Africa (EAPASA). Registration Number 2018/153. South African Council for Natural Scientific Professions (SACNASP): Pr. Sci. Nat (Reg. 121645)
Review	Jane Barrett
Highest qualification	BSc Environmental Management & Botany
Professional registration	SACNASP: Cert Sci. Nat. 130485
Years' experience	12+ years
Approval	Ken van Rooyen
Highest qualification	MSc Geography
Years' experience	30+ years
Professional registration	SACNASP: Pr. Sci. Nat (Reg. 400121/93)

1.2.1 Expertise of the EAP

Lelani Claassen started her career as an environmental consultant in 2008. She holds an Honours degree in Environmental Management from UNISA, which she completed whilst working as an environmental consultant following the successful completion of a BSc Degree in Landscape Architecture from the University of Pretoria. She has also successfully completed the SABS Short-course: Environmental Legal Requirements for ISO 14001 compliance. Her project experience is extensive in scope and covers various aspects of development including residential developments, filling stations and depots, infrastructure and mining projects.

Lelani's experience includes environmental authorisation processes: Basic Assessments, Environmental Impact Assessments, Environmental Management Plans and Programmes, Mining Right Applications, Water Use Licensing, Concept (Fatal Flaw), Pre-Feasibility and Feasibility Studies. She also has experience as an Environmental Control Officer on construction projects. Lelani has also completed numerous environmental compliance audits and environmental-legal compliance assessments.

Lelani is a Registered EAP (Registration Number 2018/153) with the Environmental Assessment Practitioner's Association of South Africa (EAPASA), the only Registration Authority for EAPs in South Africa in terms of Section 24H of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA).

Lelani is also a Registered Scientist with the South African Council for Natural Scientific Professions (SACNASP) (Environmental Science) (Pr. Sci. Nat 121645), the legislated regulatory body for natural science practitioners in South Africa in terms of the Natural Scientific Professions Act of 2003.

Lelani's CV has been included in Appendix A.

2 Details of the proposed Project

The purpose of this section of the report is to provide details of the location and nature of the proposed Project.

2.1 Applicant Details

Details of the Project Applicant are provided in Table 3.

Table 3: Details of the Project Applicant

Project applicant:	Minetek Resources (Pty) Ltd
Registration No:	2016/185876/07
Contact person:	Sithembiso Zulu
Telephone:	+27 13 007 0572
E-mail:	sithembiso@minetek.co.za

Minetek Resources is 55% owned by Senosi Group Investment Holdings (Pty) Ltd (SGIH). SGIH also owns a 25% share in MC Mining (Listed on the JSE, LSE and ASX).

2.2 Project Location

The Project is in Ward 1 and Ward 21 of the Newcastle Local Municipality of the Amajuba District Municipality in Kwa-Zulu Natal Province.

Coordinates of the site corners are shown in Plan 3. The Prospecting Right (and Mining Right Application) is registered over the following farms:

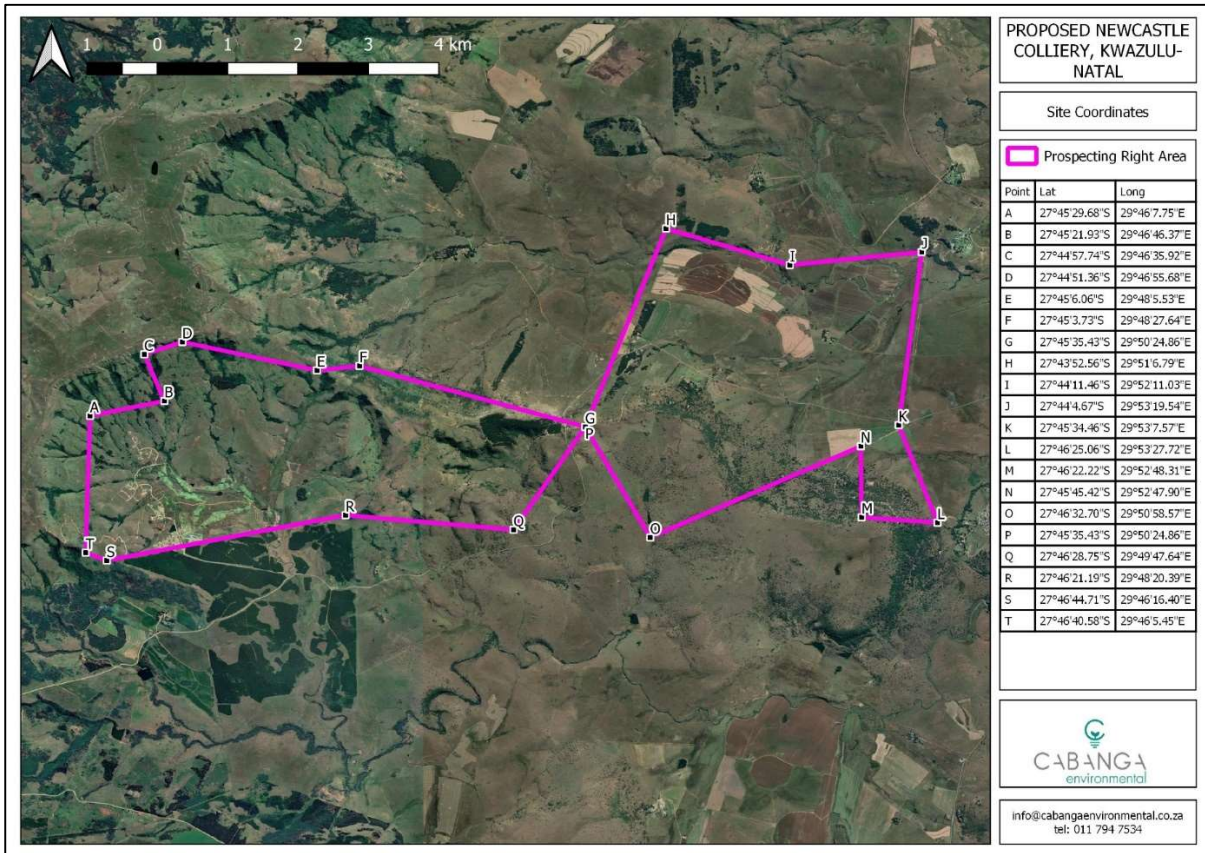
Table 4: Farms included in the Mining Right Application

Farm Portion	Planned Activity	SG Code
Subdivision 1 of Craig No 2989-HS	Surface	NOHS00000000298900001
Remainder of Craig No 2989-HS	Surface	NOHS00000000298900000
Subdivision 3(of 1) Glen Ashton No 8589-HS	Underground	NOHS00000000858900003
Harwarden No 8915-HS	Underground	NOHS00000000891500000
Mineral Area 1 on Remainder of Subdivision 4 of Waterfall No 3335-HS	Surface	NOHS00000000333500004
Portion 1 of Waterfall No 3335-HS	Surface	NOHS00000000333500001
Subdivision 2 of Dumblane No 3317-HS.	Underground	NOHS00000000331700002
Subdivision 3 of Dumblane No 3317-HS.	Underground	NOHS00000000331700003

The planned surface activities and infrastructure affects the following farms, with the remaining farms considered for future underground mining:

Table 5: Affected Farm Portions – surface activities

id	Farm Name	Farm No	Portion No	Surface Rights Owner
1	CRAIG	2989HS	1	Eersteplan Landgoed Pty Ltd
2	WATERFALL	3335HS	MA1 ON RE 4	Lobola Breeding Eiendoms Beperk
3	CRAIG	2989HS	0	Darrel John Brown
4	WATERFALL	3335HS	1	Darrel John Brown



Plan 3: Coordinates of the Project

2.3 Detailed Project Description

Prospecting was conducted in the form of drilling by previous holders. Following favourable prospecting results Minetek Resources is applying to graduate the approved Prospecting Right to a Mining Right in terms of Section 22 of the MPRDA.

The Mining Right Application Area comprises a total of 3,268.7 Ha.

The proposed Project Layout is shown in Plan 4.



Plan 4: Proposed Project Layout

2.3.1 Description of the mineral resource

Note: This description is duplicated from the Mine Works Programme compiled by Consulting Evolution Mining (Pty) Ltd.

The geology of the Project area is dominated by outcrops and sub-crops of sedimentary rocks of the Vryheid Formation of the Ecca Group, with Jurassic aged intrusives of the Ingogo sill at surface in the southwest.

The Project area hosts the complete succession of coal seams as previously documented for the northern Klip River Coalfield, from the base up; namely, the Extra Bottom, Bottom, Top and the Marker Seam. The target coal within the Project area may therefore be defined as multiple seam type as per SANS 10320:2004. Neither the Extra Bottom, nor Marker seams, are considered economic, largely due to their variable thickness and qualities. There are five known seams, and various nomenclatures exist for these seams. Only two seams, known as the Top and Bottom seams, are usually commercially exploited, with some resources also attributable to the Extra-Bottom Seam. These seams occur stratigraphically approximately 200 m above the top of the Pietermaritzburg Formation and 120 m below the base of the Volksrust Formation. The Top and Bottom seams are sometimes correlated to the Alfred and Gus seams of the Utrecht and Vryheid coalfields, respectively.

In the Project area the floor to the Bottom Seam is composed of sandstone that occasionally contains fine grained and siltstone rich portions. The Bottom Seam is only thinly developed in the Project area, and ranges in thickness from 0.02 m to 0.76 m with an average of 0.36 m. The coal lithologies also vary through the seam, but are mainly mixed, thinly banded coal. The immediate roof to the Bottom Seam occurs at depths from 9.04 m to over 379.64 m and is formed by sandstone that may be gritty in the immediate roof to the Bottom Seam, and at the base to the Top Seam.

The parting between the Bottom and Top seams averages to about 20 m in the Project area and is formed by massive, in places coarse grained sandstone. This sandstone unit forms the immediate floor to the Top Seam, and hosts a thin, discontinuous coal seam in the north of the Project area, referred to as the Middle Seam. The floor elevation changes of the Top Seam show the general structure of the Project. The Top Seam is a composite seam that is composed of up to three individual units, the Lower Top Seam (0.01-2.39 m thin banded, mixed, mainly bright coal; the Top Seam Parting P1 (0.03-2.54 m siltstone to sandstone parting; and the Upper Top Seam (0.01-2.85 m dull to dull lustrous coal. The full seam ranges in thickness from 0.43 m to 7.55 m, averaging 4.26 m. In the centre of the Project area the Top Seam is absent, the reason for which cannot be explained and needs to be investigated further. The depth to roof contours for the Top Seam show that the mining depth for this seam could range from 6 m to over 433 m.

It is envisaged that coal from the NCP will be apportioned to both the export and domestic markets based on the different coal seam capabilities. The project is expected to produce up to 1.5 million tons per annum (mtpa) of coal for market, and have a Life of Mine (LoM) of at least fifteen years for the open-pit component. The realistic production rates and LoM for the future underground mining component will be refined with further prospecting, once the open pits are operational.

2.3.2 Mining Methods

The Project comprises an initial open pit mining component, and a future underground mining component. Much of the aforementioned prospecting was undertaken on the eastern portion of the Application Area, resulting in far more detailed information being available on this area than in the western portion of the Application Area.

Available prospecting results indicate that there are opencast-able coal reserves on the eastern portion, while the western portion is potentially suitable for future underground mining.

2.3.2.1 Open pit mining

Open pit mining in the eastern portion of the Site will comprise the roll-over mining of up to seven (7) pits. The pits will be mined in sequence, and not all pits will be open at any given time. Given variable coal qualities, it is likely that more than one pit will have to be open simultaneously, to allow for blending of different coal qualities on site, to meet the required product qualities.

Roll-over mining implies that new cuts are opened when mined-out cuts are rehabilitated, the following sequence of activities applies (See Figure 1):

- A. Remove maximum topsoil: for mine development the first topsoil stripped will be placed on the topsoil stockpile, close to the final (last) void. Once a steady-state operation is achieved, topsoil stripped from the new mine area will be used directly in the rehabilitation of previously mined and backfilled areas (G);
- B. Remove soft overburden (sub-soil) with excavator and trucks. Place onto soft overburden stockpile, as close to the final void as possible when developing a new pit, or place directly on hard overburden in previous mine cuts (steady-state operation) (E; F);
- C. Drill and blast the remaining overburden and remove the overburden with a bulldozer push-over operation and load and haul by means of excavators and dumpers to expose the coal. Place hard overburden onto overburden stockpile, as close to the final void as possible, or directly into previous mine cuts (steady-state operation) (E).
- D. Exposed coal is to be drilled and blasted only when necessary and then loaded and hauled to the crusher. It is expected that most of the coal can be excavated without blasting (free digging).
Repeat C to gain access to the next seam down.
- E. Backfill the previously mined cut: carbonaceous material compacted at the bottom, followed by hard overburden,
- F. Complete the backfill of the previously mined cut by placement of soft overburden over the spoils material;
- G. Replace topsoil on backfilled areas;
- H. Address compacted areas by ripping or discing, apply fertiliser and seed using indigenous grass seed mixture (to be specified in EIA phase by specialist).

The open pit mining method is graphically illustrated in Figure 1.

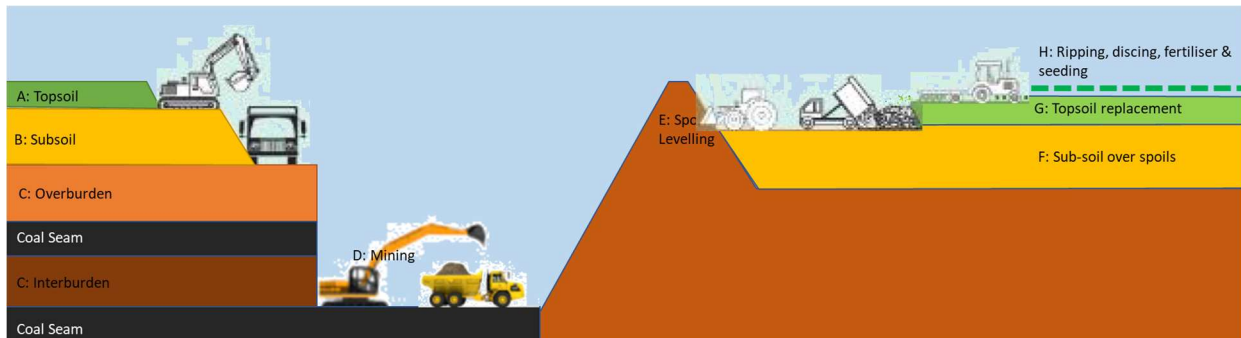


Figure 1: Open pit mining with rollover rehabilitation (Adapted from Larssa, Coaltech & MinCoSA, 2019)

2.3.2.2 Underground Mining

Where the coal seams are too deep and uneconomical for opencast mining, these will be mined through underground bord-and-pillar methods. Underground mine reserves will be accessed from the opencast highwalls, at the interface between opencast and underground mine areas. An appropriate boundary pillar will be retained between the open cast and underground mining sections

Underground mining will likely be conducted by means of bord-and-pillar mining to an appropriate safety factor, to be advised by relevant specialists. No pillar extraction is proposed.

2.3.2.3 Additional prospecting

It is probable that additional prospecting activities will be required in the western portion of the Site, to define the economic viability of mining the coal resource. These investigations will typically involve drilling of prospecting boreholes and undertaking analysis of the drill core. As the coal seams increase in depth below surface, drilling becomes more challenging. Specific management measures for continued studies to evaluate the coal in the western section of the application area will be included in the Environmental Management Programme (EMPr) and assessed during the EIA Phase.

2.3.3 Mineral Processing

Coal will be transported from the mining areas to the central processing area that will accommodate the crushing, screening and sorting plants. The use of in-pit mobile crushing and screening plants is preferred.

A combination of haulage via truck and haul roads, and a conveyor system is proposed to transport coal from the mining areas to the in-pit processing area.

It is proposed to establish a crushing and screening plant with integrated sorting technology at NCP. This results in the following stockpiles that will need to be accommodated:

- Run of Mine (RoM) stockpile (plant feed);
- Fines (to be further blended to product);
- Export product;
- Domestic product; and
- Waste (to be compacted at base of pit, before pit is backfilled).

The typical footprint required for the crushing and screening plant comprise 180m x 180m. Installed electrical capacity of the plant is expected to be 889kW. The plant is expected to use approximately 0.3m³/hour of process water for dust suppression via sprayers on transfer points.

No coal washing plant is proposed on site, and no mineral residue facilities such as discard dumps or slurry dams will be required.

Based on the known coal qualities associated with the Project, it is anticipated that some of the coal that is mined will require further processing before being sold. It is thus anticipated that at least a portion of the coal will be transported off-site, after crushing and screening, via road-truck, to undergo further processing under toll-washing agreements with existing coal washing plants. Where possible, coal can be transported to the Wykom Rail siding approximately 5km north of Newcastle, for further dispatch by rail.

The Mineral Processing area will be considered a “dirty area” in terms of GN704 (See section 3.3.1). Clean runoff will be diverted around this area with berms, and directed to the surrounding water resources, with specific measures implemented at discharge points of the diversions to prevent erosion, and subsequent siltation of surrounding water resources. Dirty runoff generated in this area will be directed to an in-pit sump and pumped to a Pollution Control Dam (PCD), from where the water will be used for dust-suppression within the site’s dirty water footprint, or be evaporated.

2.3.4 Supporting infrastructure

2.3.4.1 Roads, security and access control

Various access alternatives have been considered and are discussed in Section 5.2.

The most viable access option is via a refurbished farm road off the existing Vulintaba Road that traverses the site.

Internally, individual access / haul roads will provide access to individual project areas. Where possible, the road alignments will correspond to existing farm roads.

Security and Access Control infrastructure will be required at the active mining areas, the processing area and the central infrastructure areas (office, workshop and stores). The infrastructure is expected to include:

- Security / guard huts with access control boom gates;
- Weighbridge(s) as appropriate, with control room;
- Security lighting and fencing, as required.

The roads within the project area will be 6 m wide. The roads will be built with semi-mountable pavements and non-mountable pavements on both sides. They will also be equipped with all the required storm water systems and structures to prevent possible flooding. Measures to control dust will be applied, one of which will include regular spraying with water trucks.

Roads used to access pits will be rehabilitated once mining at the specific pit is complete; no redundant roads will be allowed to remain on site.

The existing Vulintaba Road (D96) is the main access to the farms west of the Ncandu River including the Vulintaba Country Estate and Hotel. It starts off the R34 opposite the Newcastle Corner Shopping Centre and has been declared a Tourism Route by the District Municipality.

About 1km from the R34, there is a single-lane bridge crossing the Ncandu River. The bridge is not in a good condition and shows signs of collapse (Figure 2). The Project will have to include upgrading of this bridge (in consultation with the District Municipality who owns it), as well as the intersection with the R34. The traffic impact assessment that has been commissioned as part of the EIA is expected to provide further advice on these requirements. Access to the Project site is proposed about 1.7km west of the bridge, along a proposed new access road that will be aligned to a disused farm road.



Figure 2: The existing bridge over the Ncandu River

2.3.4.2 Administration Facilities

It is proposed to use the existing farm buildings on portion 1 of the farm Craig 2989 for office and administrative support functions to the mining operation for year 1 to year 8. In year 9, the mining of pit 6 will require alternative office and administration facilities to be established. There is an opportunity to establish office and administration facilities adjacent to the Vulintaba Road on already disturbed areas of the site, however the land owner has indicated that he intends to continue the use of the buildings for his farming operations. It is therefore proposed to establish offices (portacabin-type or containerised facilities) on the footprint of Pit 1 that will have been backfilled and rehabilitated by Year 8.

2.3.4.3 Workshop and Stores

An area has been identified to house the workshop and stores, it is anticipated that Diesel storage and dispensing facilities will also be included in this area to facilitate on-site refuelling of mining vehicles. Diesel will be stored in bunded areas (either constructed concrete bunds, or self-bunded tanks). The refuelling apron will be on an impervious surface and drain to a sump with an oil separator.

All chemicals stored on site including lubricants, oils etc. will be managed in accordance with each chemical's Material Safety Data Sheet (MSDS). Access to these substances will be restricted to personnel who have been trained in the storage, handling and use of the substances.

The change house, ablutions and laundry will be located near the workshop area, or alternatively will be established as part of the office area.

2.3.5 Waste Management

No mineral waste will be generated by the plant – carbonaceous shales, overburden and rocks excavated as part of the mining process will be returned to the base of the pit, compacted and covered as part of the rollover rehabilitation of each pit. This material is therefore not regarded as waste but invaluable input material to the rehabilitation process.

Normal domestic and office-type waste will be generated at the administration facilities, and throughout the site. General office waste will be separated at source into at least recyclable and non-recyclable waste, and transported off-site by an appointed contractor for recycling / disposal as appropriate.

Hazardous waste will only be generated at the workshop area. Designated hazardous waste bins will be provided on site, for the temporary storage of hazardous waste generated at the workshop (oily rags, used oil, used filters etc.).

Domestic waste will be collected initially in refuse bins that must be available at all active areas. Refuse bins will be regularly emptied to designated skips, to be located on an impervious surface and covered, at the central waste storage area. The central waste storage area is proposed as part of the workshop area. The central waste storage area must comply to the norms and standards for the storage of waste. Skips will be provided for (at least) hazardous waste, scrap metal and general waste. Waste Management Contractors will be used to remove the waste off-site for disposal at landfill where recycling is not possible.

The workshop area will be supplied with separate bins for the disposal of hazardous waste, including oily rags, used filters etc. these will be emptied to the hazardous waste skip at the central waste storage area, where recycling cannot be facilitated. Used oils will be collected separately for recycling by service provider.

Scrap metal will be sold or donated to third parties with a demonstrated ability and license to recycle scrap metal.

Sewage waste will be contained in conservancy tanks to be serviced by honey-sucker when required. Chemical toilets in more remote parts of the site will be provided and serviced by reputable contractors.

2.3.6 Provision of Power and Water

Crushing, screening and sorting plants typically require about 0.3m³/hour of water for dust suppression. Water will also be required for potable use, ablutions and the laundry, washing of equipment and vehicles (at the wash bay in the workshop area) and dust suppression on haul roads. It is anticipated that up to 56 kilolitres of water per day will be used by the Project.

This water will either be obtained from groundwater, or the Newcastle Local Municipality, or a combination of these. The Groundwater study that has been commissioned as part of the EIA-Phase will provide further clarity on the feasibility of using the boreholes on site to supply the Project. If boreholes are to be used or established as a source of water, a modular water treatment plant may be established on site for the treatment of water that will be suitable for human consumption. Potable water will be sampled monthly for comparison to the SANS241:2015 drinking water standards. The Department of Water and Sanitation (DWS) will be consulted and engaged to apply for a Water Use License for the Mine (See Section 3.4).

Mining equipment will be diesel-driven, and a bunded diesel storage facility will be established near the workshop area, as mentioned above. Back-up power to the operations may also be supplied by diesel-generator. Up to 90,000ℓ (90m³) of diesel will be stored on site.

There are various Eskom powerlines traversing the site, and the Applicant will engage with Eskom to identify tie-in options: There is an existing 400kV line along the western boundary of the Remaining Extent of the Farm Craig 2989HS (Majuba Venus 1), and another two existing 400kV lines (Tutuka Pegasus 1, and Majuba Pegasus 1) bisecting the site.

Electricity requirements for the warehouse, stores and offices will be addressed by rooftop solar PV systems, or Eskom. Electricity requirements for the crushing and screening plant will be provided by Eskom, and the Applicant must engage with the power utility in this regard. Installed electrical capacity of the plant is 889kW.

2.3.7 Operating Hours and Employment

Construction activities will be limited to day-time hours, Monday to Saturday with no activities planned at night time or on Sundays. Construction phase labour requirements are expected to be minimal as existing facilities will be used where possible, and mobile / containerised offices and other structures will be used. Some construction jobs will be generated for road construction, construction of the PCDs, etc. Construction phase activities include (but are not limited to) vegetation and topsoil stripping, establishment of foundations (where required, for example at the Workshop floor), construction of buildings like the workshop and establishment of containerised offices and stores, road construction, construction of watercourse crossings, and establishment of fences and access control infrastructure.

Once operational, mining and processing activities will occur 24-hours per day in shifts, seven (7) days per week.

For the operational phase, the following labour figures are expected (Figure 3):

- 6 Management staff;
- 89 Mining staff (including superintendents, supervisors and operators);
- 11 Mineral Resources Management (MRM) staff;
- 11 Health, Safety and Environment (HSE) staff;
- 35 Engineering staff.

Labour requirements for the decommissioning phase are expected to be similar to the construction phase labour requirements. It is not expected that the main access roads constructed for the Project will be decommissioned as these will have beneficial future use.

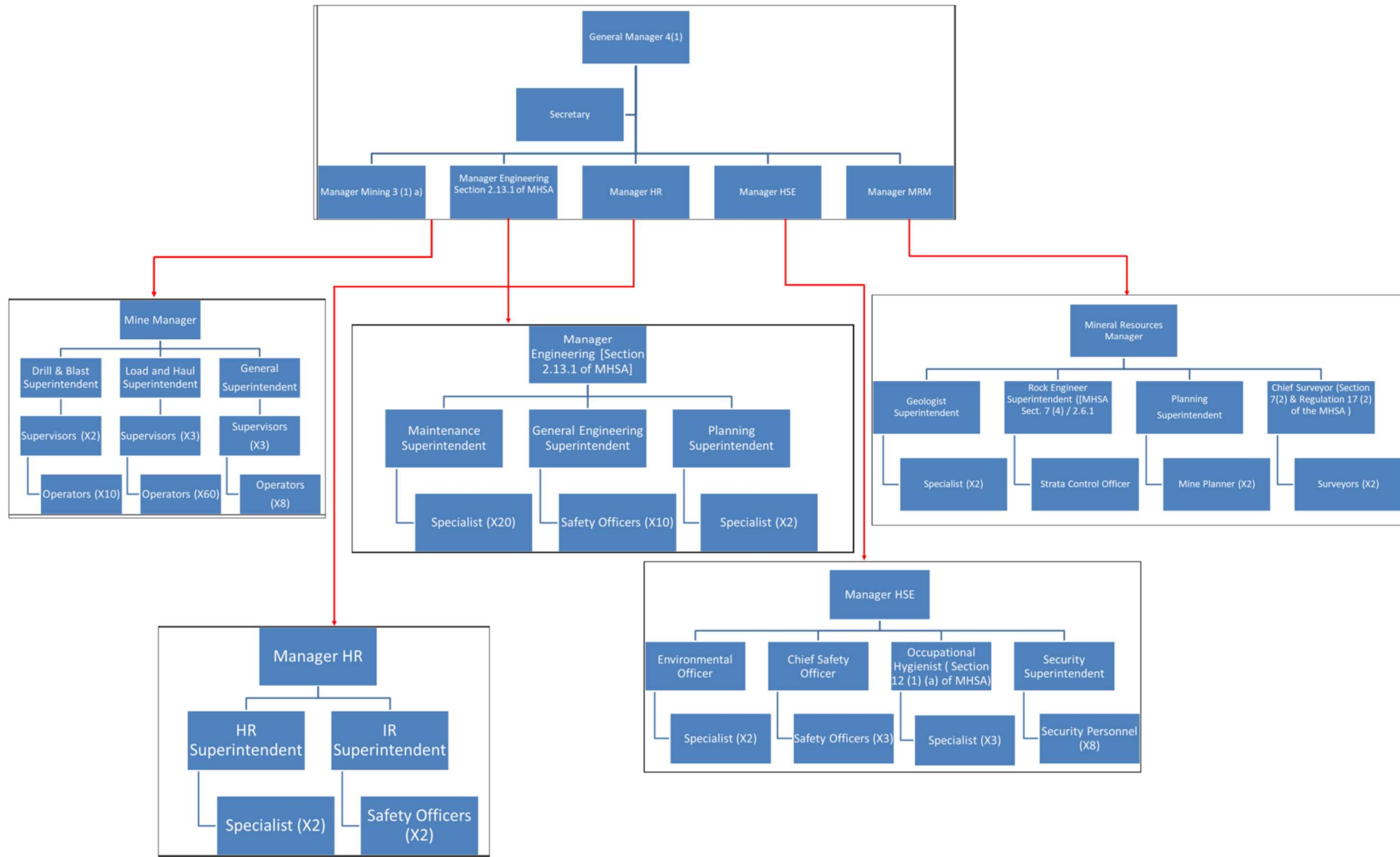


Figure 3: Preliminary Organogram

2.3.8 Time-frames for implementation of the Activities

2.3.8.1 Pre-construction Phase

The pre-construction phase is associated with the necessary pre-feasibility and feasibility studies undertaken by the Applicant, and applying for the necessary permits and authorisations, including EA, by the Applicant.

Before construction and mine development can commence, various permissions are required including (but not limited to):

- EA in terms of NEMA;
- WML in terms of NEMWA¹ for overburden stockpiles;
- Mining Right in terms of the MPRDA;
- IWUL in terms of the NWA;

Further to the above, agreements must be reached between the Applicant and affected land owners. Such agreements could take the form of purchase agreements, or long-term lease agreements and fall outside of the scope of Cabanga's expertise. Current occupants of the land may have to be relocated, which also falls outside of Cabanga's scope and expertise. Additionally, land use zoning permissions must be obtained to allow for mining on the agriculturally zoned properties.

2.3.8.2 Construction and site establishment Phases

The construction phase will involve the following activities:

- Establishment of the contractor's camp: Vegetation clearance, site levelling and establishment of fencing for access control;
- Establishment of temporary ablutions, site office, stores for construction equipment and materials;
- Construction of the stormwater management system, including clean and dirty water separation berms and channels, and the PCDs;
- Construction of the central infrastructure area and establishment of crushing, screening and sorting plants;
- Establishment of the first boxcut excavation, with pre-stripping of topsoil (to be placed on topsoil stockpile and used to make the berms for clean-water diversion) and establishment of the initial overburden stockpile.

Each time a new open pit is developed, will be considered part of the construction phase, as topsoil stripping and stockpiling, and establishment of clean and dirty water separation berms and trenches will occur ahead of each pit development. This is simultaneously considered the rehabilitation phase, as mined-out pits are backfilled and rehabilitated as new pits are developed.

The initial construction phase is anticipated to last up to 6 months.

¹ National Environmental Management Waste Act, 2008 (Act No. 59 of 2008)

Construction of the infrastructure required to access and mine the underground (western) portion of the Project, will be likely be initiated during the operational phase of the open pit operations. This component of the construction phase will involve the establishment of the contractor's camp for the underground mine, and development of the boxcut / adit to access the underground coal reserves. It is also anticipated that a conveyor will be established to convey RoM coal from the underground to the crushing and screening plant area.

2.3.8.3 Operational Phase

The Project will have an operational life of a minimum of 15 years, for the initial open pit operations, and an additional 10+ years LoM is anticipated for the proposed future underground operations.

The operational phase of the open pit mining will overlap with construction as new pits are developed, and with the rehabilitation phases as mined-out pits are backfilled and rehabilitated. Open pit scheduling is summarised in Table 6.

Table 6: Open pit scheduling

Pit	Life of Pit														
	Yr1	Yr2	Yr3	Yr4	Yr5	Yr6	Yr7	Yr8	Yr9	Yr10	Yr11	Yr12	Yr13	Yr14	Yr15
Pit D1															
Pit 1															
Pit 3															
Pit 2															
Pit 4															
Pit 6															
Pit 5															

2.3.8.4 Rehabilitation Phase

As mentioned, rehabilitation of the open pits will occur concurrent to the open pit mining phase, with mined-out pits being backfilled with overburden from the next pit, levelled, topsoiled and vegetated as new pits are developed. The concept of this concurrent rehabilitation is illustrated in Figure 4.

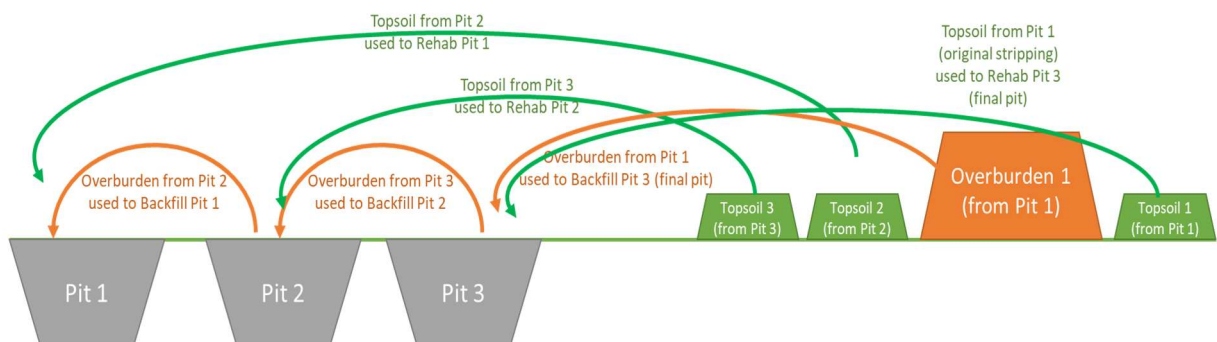


Figure 4: Conceptual illustration of concurrent rehabilitation

2.3.8.5 Decommissioning and Final Rehabilitation Phase

Once the coal from the last of the open pits has been depleted, all infrastructure associated with the open pit operations will be demolished and removed from the site. Compacted areas will be ripped / scarified and vegetated.

The final pit will be backfilled and topsoiled. The area will then be re-vegetated using a local seed mix, to be specified by the appropriate specialist in the EIA phase.

It is anticipated that the open pit sections of the Project (the eastern portion) will be fully rehabilitated, with the exception of Pit 5 enabling highwall access to the underground, whilst the underground operation is ongoing.

Once the underground reserves have been depleted, all infrastructure will be removed, the Adit sealed and the final excavation backfilled with material stockpiled at its development phase.

2.3.9 Period for which the Environmental Authorisation is required

As the Project is associated with an operational phase of approximately 15 years for the open pit portion, during which time operational aspects of the Project involves the undertaking of Listed Activities (See Section 2.4), and an additional 10 years of underground mining, the EA is required to be valid for a period of 25 years from the date of issuance.

2.4 Listed Activities being applied for

The Listed Activities in terms of the NEMA EIA Regulations 2014 (as amended) pertaining to the proposed Project are provided in Table 7 (Listing Notice 1), Table 8 (Listing Notice 2) and Table 9 (Listing Notice 3).

Table 10 indicates the Listed Waste Management Activities in terms of the NEMWA that are being applied for.

2.4.1 Activities in Listing Notice 1

Table 7: Listed Activities applied for in terms of Listing Notice 1

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
9	<p>The development of infrastructure exceeding 1 000 metres in length for the bulk transportation of water or storm water—</p> <p>(i) with an internal diameter of 0,36 metres or more; or</p> <p>(ii) with a peak throughput of 120 litres per second or more;</p> <p>excluding where—</p> <p>(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</p> <p>(b) where such development will occur within an urban area</p>	<p>Infrastructure including pipelines and channels will be required for water management on site.</p> <p>Collectively, depending on the exact borehole authorised to supply potable water to the Project, the pipeline to the office area is expected to exceed 1km in length.</p> <p>Furthermore, forced evaporation technologies may be required to manage the amount of water expected to accumulate in the pits (to be confirmed by geohydrological modelling in the EIA phase). These pipelines may also exceed 1km in length and are expected to exceed 0.36m diameter.</p> <p>Stormwater management infrastructure on site, to ensure the separation of clean and dirty stormwater, will collectively exceed 1km in length and will be sized during the EIA phase as part of the stormwater management plan development, but may exceed 0.36m in diameter.</p>
10	<p>The development and related operation of infrastructure exceeding 1 000 metres in length for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes –</p> <p>(i) with an internal diameter of 0,36 metres or more; or</p> <p>(ii) with a peak throughput of 120 litres per second or more;</p> <p>excluding where—</p> <p>(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</p> <p>(b) where such development will occur within an urban area</p>	<p>The pits will need to be dewatered to ensure safe mining within each pit. Water pumped from the in-pit sumps will be considered “dirty water” or “process water” because the water has come into contact with mining activity. The water will be pumped to the PCD or balancing dam via pipelines, some of the pits are more than 1km from the PCD location. It is expected that pipelines may have to exceed 0.36m in diameter.</p>

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
11	<p>The development of facilities or infrastructure for the transmission and distribution of electricity—</p> <p>(i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts; or (ii) inside urban areas or industrial complexes with a capacity of 275 kilovolts or more;</p> <p>excluding the development of bypass infrastructure for the transmission and distribution of electricity where such bypass infrastructure is—</p> <p>(a) temporarily required to allow for maintenance of existing infrastructure;</p> <p>(b) 2 kilometres or shorter in length;</p> <p>(c) within an existing transmission line servitude; and</p> <p>(d) will be removed within 18 months of the commencement of development.</p>	<p>Internal powerlines are expected to be 11kV only (not Listed), however, if Eskom prefers a Loop-in-loop-out (LILo) solution to their existing powerlines on site, a substation exceeding 33kV may be necessary.</p>
13	<p>The development of facilities or infrastructure for the off-stream storage of water, including dams and reservoirs, with a combined capacity of 50 000 cubic metres or more, unless such storage falls within the ambit of activity 16 in Listing Notice 2 of 2014.</p>	<p>Water pumped from the borehole for potable use will be stored in reservoirs (Jo-Jo Tanks) on site, to ensure water is available in the event of pump failure or planned maintenance. Collectively throughout the site, water storage facilities including dams and tanks may exceed 50,000m³ (to be confirmed by hydrological modelling in the EIA phase).</p>
14	<p>The development and related operation of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres.</p>	<p>Up to 90,000ℓ of Diesel will be stored on site (90m³). Additionally, paints, lubricants, greases associated with the workshop operations will also be considered dangerous goods. Collectively, dangerous goods on site will not exceed 500m³.</p>
19	<p>The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse;</p> <p>but excluding where such infilling, depositing, dredging, excavation, removal or moving—</p> <p>(a) will occur behind a development setback;</p>	<p>Internal access roads associated with the Project will require the crossing over watercourses and wetlands on the Project site. Development of such crossings will necessitate the infilling of material into watercourses, and the excavation of material from watercourses, to ensure that crossings are safe for mine vehicles but also facilitate the movement of water</p>

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
	<p>(b) is for maintenance purposes undertaken in accordance with a maintenance management plan;</p> <p>(c) falls within the ambit of activity 21 in this Notice, in which case that activity applies;</p> <p>(d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or</p> <p>(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</p>	<p>and aquatic species within the watercourses. Such crossings will also require water use licensing in terms of the NWA.</p>
24	<p>The development of a road—</p> <p>(i) for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Government Notice 545 of 2010; or</p> <p>(ii) with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres;</p> <p>but excluding a road—</p> <p>(a) which is identified and included in activity 27 in Listing Notice 2 of 2014;</p> <p>(b) where the entire road falls within an urban area; or</p> <p>(c) which is 1 kilometre or shorter.</p>	<p>Roads will be 6m wide but may increase to 8m on bends and in specific areas to allow for adequate turning circles where needed.</p>
30	<p>Any process or activity identified in terms of section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).</p>	<p>Section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEMBA) empowers the Minister to, by notice in the Gazette, identify any process or activity in a listed ecosystem as a threatening process.</p> <p>Section 53(2) of NEMBA states that “a threatening process identified in terms of subsection (1) must be regarded as a specified activity contemplated in section 24(2)(b) of the National Environmental Management Act and a listed ecosystem must be regarded as an area identified for the purpose of that section.”</p>

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
		<p>Section 24(2)(b) of NEMA, in turn, refers to the identification of "geographical areas based on environmental attributes, and as specified in spatial development tools adopted in the prescribed manner by the Minister or MEC, with the concurrence of the Minister, in which specified activities may not commence without environmental authorisation from the competent authority;"</p> <p>In light of the legislation mentioned in the above paragraphs, and as identified in this Table, the Project involves Activities identified in Listing Notice 3 of the EIA Regulations (with specific reference to the geographical areas identified in terms of 24(2)(b) of NEMA).</p> <p>Therefore, development of the project involves the undertaking of listed activities in specified geographical areas, and is thus regarded an activity identified in terms of section 53(1) of the NEMBA.</p>
67	<p>Phased activities for all activities—</p> <p>(i) listed in this Notice, which commenced on or after the effective date of this Notice or similarly listed in any of the previous NEMA notices, which commenced on or after the effective date of such previous NEMA Notices; excluding the following activities listed in this Notice—</p> <p>17(i)(a-d); 17(ii)(a-d); 17(iii)(a-d); 17(iv)(a-d); 17(v)(a-d); 20; 21; 24(i); 29; 30; 31; 32; 34; 54(i)(a-d); 54(ii)(a-d); 54(iii)(a-d); 54(iv)(a-d); 54(v)(a-d); 55; 61; 64; and 65; or</p> <p>(ii) listed as activities 5, 7, 8(ii), 11, 13, 16, 27(i) or 27(ii) in Listing Notice 2 of 2014 or similarly listed in any of the previous NEMA notices, which commenced on or after the effective date of such previous NEMA Notices;</p> <p>where any phase of the activity was below a threshold but where a combination of the phases, including expansions or extensions, will exceed a specified threshold.</p>	<p>As identified in this Table, the Project will involve the undertaking of various Listed Activities. As the Project comprises several phases, described in Section 2.3.8.</p>

2.4.2 Activities in Listing Notice 2

Table 8: Listed Activities being applied for in terms of Listing Notice 2

Activity No(s):	Provide the relevant Scoping and EIA Activity(ies) as set out in Listing Notice 2 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
15	The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for— the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	Clearance of indigenous vegetation will be required for the establishment of supporting infrastructure and for development of the mine pits. The Mining Right Area (MRA) being applied for comprises 3,269Ha. Surface disturbance will comprise approximately 600Ha, of which approximately 400Ha is considered indigenous vegetation.
17	Any activity including the operation of that activity which requires a mining right in terms of section 22 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity as contained in this Listing Notice, in Listing Notice 1 of 2014 or Listing Notice 3 of 2014, required to exercise the mining right.	The applicant has applied for a mining right in terms of the MPRDA for the Newcastle Coal Project, see Appendix E

2.4.3 Activities in Listing Notice 3

Table 9: Listed Activities being applied for in terms of Listing Notice 3

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 3 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
4 (d) (viii)	The development of a road wider than 4 metres with a reserve less than 13,5 metres. d. KwaZulu-Natal viii. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;	Internal roads associated with the Project will be 6m wide and are required to cross over CBAs.
10 (d) (ix) and (xii)(cc)	The development and related operation of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage	Diesel storage associated with the Project will be 90m ³ with additional dangerous goods associated with the workshop and stores.

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 3 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
	<p>occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres.</p> <p>d. KwaZulu-Natal</p> <p>ix. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</p> <p>xiii. Outside urban areas:</p> <p>(cc) Areas within a watercourse or wetland; or within 100 metres from the edge of a watercourse or wetland;</p>	<p>It is expected that the Diesel Bay and all chemical storage will be associated with the workshop area, which has been located outside of CBAs on site. There is a wetland that has been delineated south of the proposed workshop area. it is expected that dangerous goods storage can be undertaken further than 100m from this wetland, however the space-constraints on the site are noted and this cannot be confirmed until the detailed design is available.</p>
12 (b) (v)	<p>The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan</p> <p>d. KwaZulu-Natal</p> <p>v. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</p>	<p>The Mine design has been adjusted to avoid affecting indigenous vegetation within CBAs as far as possible. Despite this, areas of proposed open pits 1, 2 and 3 affect CBAs and will collectively necessitate the clearance of approximately 150 ha of indigenous vegetation from CBAs.</p>
14	<p>The development of—</p> <p>(ii) infrastructure or structures with a physical footprint of 10 square metres or more;</p> <p>where such development occurs—</p> <p>(c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse; excluding the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour</p> <p>d. KwaZulu-Natal</p> <p>vii. Critical biodiversity areas or ecological support areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</p>	<p>Collectively the infrastructure associated with the Project exceed 10m². watercourses and wetlands have been avoided in the Project design as far as possible; however, given the locations of the pits (dictated by the coal resource) and the extent of wetlands on site, road infrastructure associated with wetland or river crossings are expected to meet the criteria of this Listed Activity.</p>

2.4.4 Listed Waste Management Activities

Table 10: Listed Waste Management Activities

Activity No(s):	Provide the relevant Waste Management Activity(ies) as set out in GN921 (as amended)	Describe the portion of the proposed project to which the applicable listed activity relates.
Category B Activity 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 No. 28 of 2002).	<p>"Residue deposits" means any residue stockpile remaining at the termination, cancellation or expiry of a prospecting right, mining right, mining permit, exploration right or production right;</p> <p>"Residue stockpile²" means any debris, discard, tailings, slimes, screening, slurry, <u>waste rock</u>, foundry sand, mineral processing plant waste, ash or <u>any other product derived from or incidental to a mining operation and which is stockpiled</u>, stored or accumulated <u>within the mining area for potential re-use</u>, or which is disposed of, by the holder of a mining right, mining permit or, production right or an old order right, including historic mines and dumps created before the implementation of this Act.</p> <p>Residue deposits and residue stockpiles include:</p> <ul style="list-style-type: none"> wastes from mineral excavation wastes from physical and chemical processing of metalliferous minerals wastes from physical and chemical processing of nonmetalliferous minerals wastes from drilling muds and other drilling operations. <p>Thus, despite the overburden stockpiles that will be established as part of the open pit mining operations being considered essential components of rehabilitation activities, these are legally defined as "residue stockpiles" and require a WML.</p>

Activities in Category C of the NEMWA Regulations are also relevant to the Project, and the Norms and Standards therefore apply to the Project. Please see Section 3.3 where the Norms and Standards are discussed further.

² As defined in the NEMWA

3 Policy and Legislative Context

The Constitution of the Republic of South Africa, 1996 is the supreme law of the country; laws or conduct that are inconsistent with the Constitution are invalid and the obligations imposed by the Constitution must be fulfilled (Section 2).

The Bill of Rights contained in Chapter 2 of the Constitution forms the cornerstone of democracy in South Africa. Section 24 of the Constitution states that:

Everyone has the right to

(a) an environment that is not harmful to their health or well-being; and

(b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that –

- *Prevent pollution and ecological degradation;*
- *Promote conservation; and*
- *Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.*

To give effect to Section 24 of the Constitution, several laws have been promulgated towards realisation of these rights. The National, Provincial and Local legislation most relevant to the proposed Project are discussed herein.

3.1 The MPRDA and its Regulations

The Mineral and Petroleum Resources Development Act, 2002 (MPRDA) (Act No. 28 of 2002) and its Regulations (GNR527, 23 April 2004 as amended by: GNR R1288 dated 29 October 2004; GNR1203 dated 30 November 2006; and GNR349 dated 18 April 2011) is the predominant legislation dealing with the acquisition of rights to search for, extract and process mineral resources in South Africa. The MPRDA holds that mineral resources in South Africa belong to the nation and that the State is the custodian thereof.

3.1.1 Applications for Mining Rights

Any person may apply for a mining right by following the application procedure set out in the MPRDA and administrated by the Department of Mineral Resources and Energy (DMRE). Any person who wishes to apply for a mining right must simultaneously apply for an environmental authorisation. Applications for rights must be accepted if the application requirements are met, and if no other person holds rights or permits for the same mineral on the same land.

Once the DMRE accepts an application, the DMRE will notify the applicant to submit the relevant environmental reports, required by NEMA, and consult with Interested and Affected Parties (I&APs).

In general terms, the Minister must grant a mining right if—

- a. the mineral can be mined optimally in accordance with the mining work programme;
- b. the applicant has access to financial resources and has the technical ability to conduct the proposed mining operation optimally;

- c. the financing plan is compatible with the intended mining operation and the duration thereof;
- d. the mining will not result in unacceptable pollution, ecological degradation or damage to the environment;
- e. the applicant has provided financially and otherwise for the prescribed social and labour plan;
- f. the applicant has the ability to comply with the relevant provisions of the Mine Health and Safety Act, 1996 (Act No. 29 of 1996);
- g. the applicant is not in contravention of any provision of this Act; and
- h. the granting of such right will further the objects referred to in section 2(d) and (f)³ and in accordance with the charter contemplated in section 100 and the prescribed social and labour plan.

Section 5A of the MPRDA holds 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 in terms of NEMA (See Section 3.2);
- b. a reconnaissance permission, prospecting right, permission to remove, mining right, mining permit, retention permit, technical co-operation permit, reconnaissance permit, exploration right or production right, as the case may be; and
- c. giving the landowner or lawful occupier of the land in question at least 21 days written notice.

3.1.2 Legal nature of prospecting right, mining right, and rights of holders thereof

Section 5 (1) of the MPRDA explains that a prospecting right and mining right (among others), granted in terms of the MPRDA and registered in terms of the Mining Titles Registration Act, 1967 (Act No. 16 of 1967), is a limited real right in respect of the mineral and the land to which such right relates.

The holder of a prospecting right or mining right may (subject to the provisions of the MPRDA) (according to Section 5(3):

- enter the land to which such right relates together with his or her employees, and bring onto that land any plant, machinery or equipment and build, construct or lay down any surface, underground infrastructure which may be required for the purpose of prospecting or mining;
- prospect or mine, as the case may be, for his or her own account on or under that land for the mineral for which such right has been granted;
- remove and dispose of any such mineral found during the course of prospecting or mining;

³ Section 2(d)"and (f): The objects of this Act are to— (d) substantially and meaningfully expand opportunities for historically disadvantaged persons, including women, to enter the mineral and petroleum industries and to benefit from the exploitation of the nation's mineral and petroleum resources; (f) promote employment and advance the social and economic welfare of all South Africans.

- subject to the National Water Act, 1998 (Act No. 36 of 1998), use water from any natural spring, lake, river or stream, situated on, or flowing through, such land or from any excavation previously made and used for prospecting, mining, exploration or production purposes, or sink a well or borehole required for use relating to prospecting, mining, exploration or production on such land; and
- Carry out any other activity incidental to prospecting, mining, exploration or production operations, which activity does not contravene the provisions of this Act.

Section 53 of the MPRDA provides that persons who intend to use the surface rights of any land in any way which may result in sterilisation of a mineral resource or impede any objects of the MPRDA, has to obtain consent from the Minister of Mineral Resources prior to undertaking such activity or land use.

The Prospecting Rights for coal over the properties are being transferred to Applicant (Minetek Resources), and Minetek has applied to graduate the Prospecting Right to a Mining Right. See Appendix E.

3.1.3 The Mining Charter

Section 100(2)(a) of the MPRDA empowers the Minister to develop a Broad-Based Black Economic Empowerment (BBBEE) Charter for the South African Mining and Minerals Industry ("Mining Charter") as a regulatory instrument.

One of the objectives of the MPRDA and Mining Charter is to ensure the attainment of Government's objectives to redress historical socio-economic inequalities, to ensure broad-based economic empowerment and the meaningful participation of Historically Disadvantaged Persons in the mining and minerals industry.

The Mining Charter also prescribes allocation of benefits to host communities in accordance with an approved host community development programme, in addition to the Social and Labour Plan (S&LP) requirements as per Section 23 of the MPRDA. Further to the direct benefits accruing to historically disadvantaged South Africans by the implementation of elements of the Mining Charter (including ownership, employment equity and Human Resources Development), Mines are also now obligated to meet certain BEE targets in terms of procurement, supplier and enterprise development.

Minetek Resources is a Level 1 BBBEE contributor with 100% black ownership.

3.1.4 Other Mining Legislation

Regulation 17(8) of the Mine Health and Safety Act, 1996, (MHSA) Regulations state that "no person may erect, establish or construct any buildings, roads, railways, dams, waste dumps, reserve land, excavations or any other structures whatsoever within a horizontal distance of 100 (one hundred) metres from workings, unless a lesser distance has been determined safe by a professional geotechnical specialist and all restrictions and conditions determined by him or her or by the Chief Inspector of Mines are complied with."

There are several other pieces of legislation which deal with such issues such as royalties (the Mineral and Petroleum Resources Royalty Act, 2008), title registration (the Mining Titles Registration Act, 1967), and health and safety (MHSA). These issues constitute specialist fields on their own and will not be discussed in further detail.

Sections of the MPRDA have been amended to make the Minister of Mineral Resources the responsible authority for implementing environmental matters in terms of the NEMA as it relates to mining and prospecting operations and incidental activities, and to align the MPRDA with NEMA.

The EIA Process that is being followed meets the requirements of the MPRDA, NEMA and NEMWA and the relevant applications and reports will be submitted to the DMRE, as the competent authority.

3.2 The NEMA and its Regulations

The National Environmental Management Act, 1998 (Act No 107 of 1998) (NEMA), as amended provides for co-operative environmental governance by establishing principles for decision-making on matters affecting the environment (among others).

NEMA recognises in its preamble that “sustainable development requires the integration of social, economic and environmental factors in the planning, implementation and evaluation of decisions to ensure that development serves present and future generations”.

Section 24 (1)(a) and (b) of NEMA state that the potential impact on the environment and socio-economic conditions of activities that require authorisation or permission by law and which may significantly affect the environment, must be considered, investigated and assessed prior to their implementation and reported to the organ of state charged by law with authorizing, permitting, or otherwise allowing the implementation of an activity.

3.2.1 EIA Regulations

The EIA Regulations⁴, set out the procedures for applying for environmental authorisation (among other provisions) while the associated Listing Notices⁵ identify specific activities and thresholds for activities that require Environmental Authorisation in terms of NEMA before being undertaken.

There are new Listed Activities associated with the proposed Project, as described in Section 2.4 of this Report. Activities are identified in terms of Listing Notice 1, 2 and 3 of the EIA Regulations 2014 (as amended) and a Scoping and EIA Process is therefore relevant to the application.

3.2.2 Financial Provisioning Regulations

The NEMA (as amended) states in Section 24P that the holder of an environmental authorisation pertaining to mining must comply with the prescribed financial provision for the rehabilitation, closure and on-going post decommissioning management of negative environmental impacts arising from the mining operation.

The financial provision contemplated in Section 24P must guarantee the availability of sufficient funds to:

⁴ Government Notice (GN) Regulation 982 were published on 04 December 2014 and promulgated on 08 December 2014, as amended.

⁵ GN R 983 (Listing Notice No. 1), GN 984 (Listing Notice No. 2) and GN R 985 (Listing Notice No. 3) as amended.

- Rehabilitate adverse environmental impacts of the activities⁶;
- Undertake decommissioning and closure of the operations, including removal of buildings, structures and other related facilities and objects;
- Remediate latent or residual environmental impacts resulting from the operations, which may only become known or apparent in future; and
- Remediate any other negative environmental impacts.

The Financial Provision Regulations, 2015 (as amended), regulates the determination and provision as contemplated in NEMA for the costs associated with the management, rehabilitation and remediation of environmental impacts resulting from mining operations. The Regulations apply to applicants and holders of mining rights and permits.

As part of the EIA-phase, Cabanga will compile a detailed rehabilitation report and calculate the financial provision that will be required for closure and rehabilitation of the Project. The Report will be compiled according to the Financial Provisioning Regulations, 2015 (as amended) published in GN 1147.

3.2.3 Other Regulations

The National Appeal Regulations regulate the procedure contemplated in section 43(4) of the NEMA relating to the submission, processing and consideration of, a decision on an appeal. Once the DMRE have reached a decision on the Application (following completion of the EIA-Phase), the appeal provisions will be communicated to registered I&APs.

Guidelines and Procedures have been published in terms of the NEMA that have been consulted, and will continue to be consulted, throughout this application process. These include (but are not limited to):

- Public Participation Guideline, GN 807 in Government Gazette 35769, dated 10 October 2012.
- Requirement to submit a Screening Tool Report generated by the National web-based environmental screening tool; GN 960 in Government Gazette 42561 dated 5 July 2019;
- Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes (Agriculture, Avifauna, Biodiversity, Noise, Defence and Civil Aviation) in terms of Sections 24(5)(a) and (h) and 44 of the NEMA when applying for Environmental Authorisation; GN 320 in Government Gazette 43110 dated 20 March 2020.
- Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes (Terrestrial Animal Species, Terrestrial Plant Species) in terms of Sections 24(5)(a) and (h) and 44 of the NEMA when applying for Environmental Authorisation; GN 1150 in Government Gazette 43855 dated 30 October 2020.

Further to the above, regulations have been promulgated in terms of NEMA that specifically relate to the development of infrastructure for electricity transmission and distribution in specific geographic areas. The Project does not fall within the identified areas.

⁶ "Activities" in this context refers to Activities Listed in terms of the NEMA Regulations, as well as prospecting, exploration, mining or production activities, including the pumping and treatment of polluted or extraneous water.

3.3 NEMWA and its Regulations

The National Environmental Management Waste Act, 2008 (Act No. 59 of 2008) (NEMWA) provides for licensing and control of waste management activities and national norms and standards for regulating the management of waste.

Regulations to the NEMWA (GN R 921, as amended) identifies a number of activities which require a Waste Management License (WML) prior to being undertaken. The establishment (and reclamation) of residue deposits and residue stockpiles is included in the List of Activities as follows:

Category B, Activity 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 No. 28 of 2002).

"Residue deposits" means any residue stockpile remaining at the termination, cancellation or expiry of a prospecting right, mining right, mining permit, exploration right or production right;

"Residue stockpile⁷" means any debris, discard, tailings, slimes, screening, slurry, waste rock, foundry sand, mineral processing plant waste, ash or any other product derived from or incidental to a mining operation and which is stockpiled, stored or accumulated within the mining area for potential re-use, or which is disposed of, by the holder of a mining right, mining permit or, production right or an old order right, including historic mines and dumps created before the implementation of this Act.

Residue deposits and residue stockpiles include:

- a) wastes from mineral excavation
- b) wastes from physical and chemical processing of metalliferous minerals
- c) wastes from physical and chemical processing of nonmetalliferous minerals
- d) wastes from drilling muds and other drilling operations.

Thus, despite the overburden stockpiles that will be established as part of the open pit mining operations being considered essential components of rehabilitation activities, these are legally defined as "residue stockpiles" and require a WML.

The process to apply for a WML is in this case an integrated process to the application for Environmental Authorisation.

3.3.1 Norms and Standards for Storage of Waste

Activities identified in Category C of the NEMWA Regulations (GN R 921) do not require a WML, but must comply with the relevant requirements or standards determined by the Minister. The Norms and Standards for Storage of Waste, published under Government Notice R.926 in Government Gazette 37088 of 29 November 2013 are relevant to the Project, due to the following activities proposed at the Project site.

⁷ As defined in the NEMWA

- The storage of general waste at a facility that has the capacity to store in excess of 100m³ of general waste at any one time, excluding the storage of waste in lagoons or temporary storage (less than 90 days) of such waste.
- The storage of hazardous waste at a facility that has the capacity to store in excess of 80m³ of hazardous waste at any one time, excluding the storage of hazardous waste in lagoons or temporary storage of such waste.
- The storage of waste tyres in a storage area exceeding 500m³.

The central waste storage area at the Project, including the Salvage Yard, must therefore be registered with the DMRE (as the competent authority) 90 days prior to construction taking place. As the DMRE does not have a formal registration system for waste storage facilities, approval of the Project by the DMRE will be regarded as registration unless instructed otherwise by the DMRE.

Location, design, construction and management of the facilities must be undertaken according to the requirements of the Norms and Standards.

3.3.2 Regulations regarding the planning and management of Residue Stockpiles and Residue Deposits

The Residue Deposits Regulations, 2015, aims to regulate the planning and management of residue stockpiles and residue deposits from prospecting, mining, exploration or production operations.

The NEMWA prescribes a Waste Classification and Management System comprising of three Regulations that:

- establish a methodology for the classification of all wastes (GN R 634);
- provides methods for the assessment of wastes to be disposed of to landfill (GN R 635) and to determine the type of landfill site on which such waste can be disposed of (GN R 636); and
- Regulations specifically pertaining to residue stockpiles and residue deposits (GN R 632).

While the term "Landfill" is not specifically defined in the Act or its Regulations, it is accepted that there is a clear distinction between a landfill site and a residue stockpile/deposit and GN R 635 and 636 cannot be made applicable to a residue stockpile/deposit, including the overburden dumps associated with the Project.

3.4 The NWA and its Regulations

Section 27 of the Constitution affirms that everyone has the right to have access to (1)(b) sufficient... water, and that (2) the State must take reasonable legislative and other measures, within its available resources, to achieve the progressive realisation of these rights".

"Sufficient" in relation to water resource management, implies the availability of water in sufficient volumes to address certain needs, and water that is of sufficient quality to be fit for purpose. The Environmental Rights confirmed in Section 24 of the Constitution therefore tie in with the rights enshrined in Section 27, and enables the state to take reasonable legislative and other measures to prevent pollution of water resources and secure ecologically

sustainable development and use of natural resources (including water) while promoting justifiable economic and social development.

The National Water Act, 1998 (Act No. 36 of 1998) (NWA) is founded on the principle that the National Government has overall responsibility for and authority over water resource management, including the equitable allocation and beneficial use of water in the public interest, and that a person is only entitled to use water, without a license, if the use is permissible in terms of Section 22 of the NWA.

The competent authority in respect of water use licenses is the Department of Water and Sanitation (DWS, previously Department of Water Affairs and Forestry, DWAF).

“Water Use” is defined in Section 21 of the NWA, Table 11 identifies the legally defined water uses and how each of these may or may not apply to the Project. Water uses that are not considered relevant have been indicated in Grey.

Table 11: Evaluation of water uses relevant to the Project

No	Description	Relevance to this Project
21(a)	Taking water from a water resource.	Abstraction from boreholes. Abstraction from pits.
21(b)	Storing of water	Water storage dams and tanks.
21(c)	Impeding or diverting the flow of water in a watercourse.	This is relevant to all construction and mining activities within 100m of a watercourse or within 500m of a wetland.
21(d)	engaging in a stream flow reduction activity contemplated in section 36	Section 36 relates to afforestation and is not considered relevant to the Project.
21(e)	engaging in a controlled activity identified as such in section 37(1) or declared under section 38(1):	Irrigation of land with waste water is a controlled activity. Intentional recharging of an aquifer with any waste or water containing waste is also a controlled activity. This is not relevant to the Project.
21(f)	discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit	Clean water will be diverted around the site, with mine-affected water being contained and re-used on site, or evaporated. No planned discharges of water to the surrounding water resources will occur, except in extreme rainfall situations.
21(g)	disposing of waste in a manner which may detrimentally impact on a water resource	This activity is relevant to pollution control facilities on site, such as the pollution control dams. Recently, DWS has also insisted that product stockpile areas be licensed in terms of Section 21(g), due to rainwater falling on such areas being considered water containing waste. Conservancy Tanks will also require licensing in terms of Section 21(g).
21(h)	disposing in any manner of water which contains waste from, or which has been heated in any industrial or power generation process	The project is not associated with the heating of water through an industrial or power generating process, this water use is considered irrelevant.

No	Description	Relevance to this Project
21(i)	Altering the bed, banks. Course or characteristics of a watercourse.	This is relevant to all construction and mining activities within 100m of a watercourse or within 500m of a wetland.
21(j)	removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people	This activity is typically associated with dewatering of mines and will be included in the water use license application.
21(k)	Using water for recreational purposes.	This water use is not relevant to the Project.

3.4.1 Regulations for the use of water for mining and related activities, 4 June 1999 (GNR 704)

Specific regulations made in terms of Section 26(1) of the NWA pertain to the use of water for mining and related activities. The provisions of GN704 have been incorporated into the design of the proposed Project, where possible.

Where the implementation of provisions of GN704 is not possible, the Integrated Water Use License Application (IWULA) must include application for exemption from the relevant provisions, as per Regulation 3 of GN704. This will include the provisions of Regulation 4 as some of the mining activities and associated infrastructure are proposed in close proximity to water resources, and the rollover mining method that is proposed will involve the placement of overburden (legally defined as residue) back into the pits.

Key provisions of GN704 that the Mine must comply with include:

- The Mine may not use any material that is likely to cause pollution (including sedimentation) to construct any dam, impoundment, road etc.
- Clean- and dirty water must be separated on site, and the infrastructure to ensure separation of these systems must be able to cater for at least the 1:50-year flood event.
- Facilities for the containment of dirty water on site must be designed and operated to prevent spills from the facilities, even during rainfall events up to and including the 1:50-year flood event. Dams must be operated with a freeboard of at least 0.8m below overflow level.
- The mine must prevent erosion, leaching and/or seepage from the Project.
- The mine must recycle water at the Mine as far as possible.
- The mine must ensure access to facilities are restricted to authorised persons.

3.5 NEMAQA and its Regulations

A fundamental aspect of the approach to the air quality regulation, as reflected in the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) (NEMAQA) is the establishment of National Ambient Air Quality Standards (NAAQS) (GN R 1210 of 2009). These standards provide the goals for air quality management plans and also provide the benchmark by which the effectiveness of these management plans is measured.

Activities that are identified in GN 983 require an Atmospheric Emissions License (AEL) to be issued in terms of NEMAQA. No such activities are associated with the proposed Project and an AEL will not be required.

GN701 declared greenhouse gases as priority air pollutants. The greenhouse gas reporting regulations (GN275) identifies Mining and Quarrying as one of the industries who must report their Greenhouse Gas Emissions to the competent authority. The Project is therefore obligated to determine and report on their emissions, once operational.

The National Atmospheric Emission Reporting Regulations, 2015 identifies all mines as a Group C Emission Source, and requires the Mine to report to the National Atmospheric Emissions Information System (NAEIS) on their dust, PM₁₀ and PM_{2.5} emissions on an annual basis.

3.6 Legislation pertaining to conservation

The National Environmental Management: **Protected Areas Act**, 2003 (Act No 57 of 2003) (NEMPAA) (as amended) provides for the protection and conservation of ecologically viable areas of South Africa's biological diversity, natural landscapes and seascapes, and for the establishment of a register of protected areas (the South African Protected Areas Database, SAPAD). The formally protected areas in the vicinity of the proposed Project are illustrated in Plan 5, and include:

- Sneeuwberg Protected Environment 17.5km west and north-west
- Ncandu Nature Reserve 20km south-west
- Chelmsford Public Resort Nature Reserve 20km south

Areas identified in the National Protected Area Expansion Strategy (NPAES) are also shown in Plan 5. The application area is partially earmarked for protected area expansion, outside of the areas currently planned to be associated with surface disturbance, presenting a viable opportunity for ecological offsets to be implemented, should such be warranted.

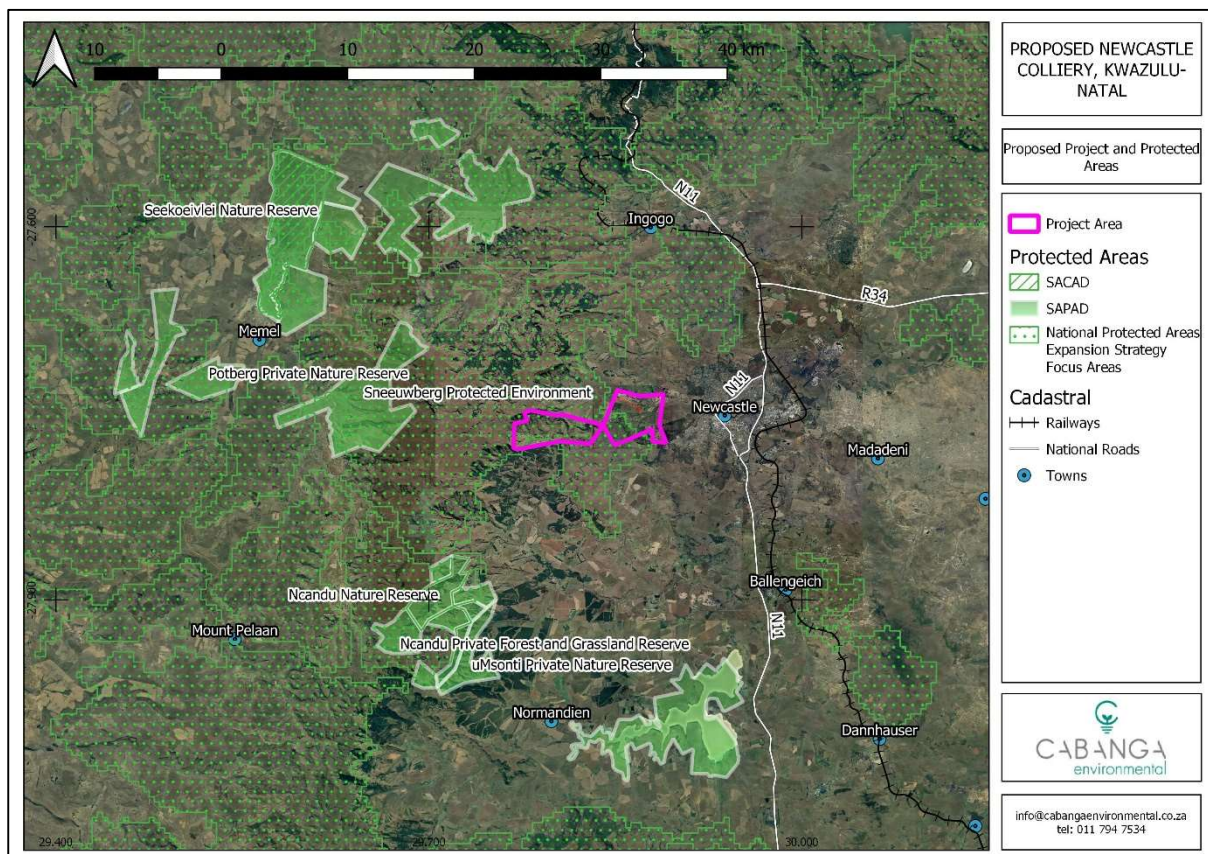
The National Environmental Management: **Biodiversity Act**, 2004 (Act No. 10 of 2004) (NEMBA) relates to the protection of species and ecosystems that warrant national protection, within the framework of the NEMA. Similarly, the National **Forests Act**, 1998 (Act 84 of 1998) allows for the protection of certain tree species. Certain Fauna and Flora Species of Conservation Concern (SCC) may occur on the site, and a number of biodiversity specialist studies have been commissioned as part of the EIA Process. If there are protected species that must be directly affected by the proposed Project, that cannot be avoided, the necessary permits for translocation of these species will have to be obtained prior to their disturbance.

Conservation Planning within the Province and Amajuba District Municipality has identified Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs) where development restrictions apply, to enable conservation authorities to meet their biodiversity targets. These areas are also shown on Plan 5.

The Conservation of **Agricultural Resources Act**, 1983 (Act No 43 of 1983) (CARA) provides for control over the utilization of the natural agricultural resources of the Republic to promote the conservation of soil, water sources and vegetation and the combating of weeds and invader plants. It is recommended that the development of the Project be associated with alien

invasive species management. Specific emphasis has to be placed on the importance of soil management to preserve soils and soil potential (as much as possible).

The **Subdivision of Agricultural Land Act, 1970 (Act 70 of 1970) (SALA)** controls the subdivision and use of agricultural land and is relevant to the proposed Project, as portions of the development footprint traverse land used for agricultural purposes. Land with high-value agricultural potential should be protected and not sub-divided or fragmented into smaller portions that would threaten the viability of agricultural activities. Sub-division of agricultural land requires the consent of the Minister of Agriculture.



Plan 5: Protected areas in the vicinity of the Project

Section 38 of the National **Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA)** requires that a person who intends to undertake certain types of activities, must notify the responsible Heritage Authority of such development proposal and furnish such information that the Authority may require.

A Heritage / Archaeological impact assessment has been commissioned as part of the EIA for the project. The South African Heritage Resources Agency (SAHRA) and AMAFA are included in the public participation process that is being undertaken as part of the EIA and will be provided with copies of the aforementioned Archaeological assessment of the site, once completed. A palaeontological Assessment has also been commissioned.

3.7 Other relevant Legislation

In addition to the Legislation discussed above, Table 12 summarises some of the other key legislation and guidelines relevant to this application:

Table 12: Other Relevant legislation and guidelines

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	HOW THIS DEVELOPMENT COMPLIES WITH THE LEGISLATION AND GUIDELINES
DEA (2017), Guideline on Need and Desirability, Department of Environmental Affairs (DEA), Pretoria, South Africa	The Guideline was and will continue to be considered in assessing the need and desirability of the Project aspects.
Department of Environmental Affairs, Department of Mineral Resources, Chamber of Mines, South African Mining and Biodiversity Forum, and South African National Biodiversity Institute, 2013. Mining and Biodiversity Guideline: Mainstreaming biodiversity into the mining sector. Pretoria	The majority of the site is identified in the Mining and Biodiversity Guideline as having highest biodiversity importance, and thus presents highest risk for mining projects. This must be carefully considered throughout the application process, impact assessment and specifically in the formulation of mitigation measures in the EMPr.
Spatial Land Use and Management Act, 2013 (Act No. 16 of 2013) (SPLUMA)	SPLUMA aims to develop a framework to govern planning permissions and the lawful use of land. In terms of SPLUMA the developer should ensure that the surface rights areas where the project is undertaken, is approved as such.
Restitution of Land Rights Act, 1994, the Land Reform (Labour Tenants) Act, 1996 and the Extension of Security of Tenure Act, 1997.	Consultation with the Land Claims Commissioner has been initiated (See Appendix C for proof of consultation). It was confirmed that there are no land claims on the affected properties.
Local Government Municipal Systems Act, 2000 (Act No. 32 of 2000) as amended	The Act requires local government to compile a Spatial Development Framework (SDF) which must include the provision of basic guidelines for a land use management system for the municipality. The objectives of an SDF are to promote sustainable functional and integrated human settlements, maximise resource efficiency, and enhance regional identity and unique character of a place. In addition, Municipalities are required to develop Integrated Development Plans (IDPs) which is a government co-ordinated approach to planning that seeks to ensure the economic and social enhancement of all within their jurisdiction. It provides a land use framework, considers infrastructure development, and the protection of the environment.
Development Facilitation Act, 1995 (Act No. 67 of 1995) (DFA)	The Act promotes the integration of the social, economic, institutional and physical aspects of land development and also promotes integrated land

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	HOW THIS DEVELOPMENT COMPLIES WITH THE LEGISLATION AND GUIDELINES
	<p>development in rural and urban areas in support of each other.</p> <p>The Act encourages the availability of residential & employment opportunities in close proximity to or integrated with each other, while optimising the use of existing resources including such resources relating to agriculture, land, minerals, bulk infrastructure, roads, transportation and social facilities.</p>
National Road Traffic Act, Act No. 93 of 1996 (NRTA) and National Land Transport Act, Act No. 5 of 2008 (NLTA)	These Acts relate specifically to the planning and development of transport systems and the safe use of roads. A Traffic Assessment has been commissioned as part of the EIA.
Hazardous Substances Act, 1973 (Act No 15 of 1973)	<p>The Act provides for the control of hazardous substances (sub-divided into four groups) defined as any substance that by their nature are toxic, corrosive, irritant, flammable, sensitising or pressure generating, which may cause ill-health, injury or death in humans.</p> <p>Minimum requirements for hazardous substances associated with the projects will be incorporated into the EMP and fully implemented on site.</p>
Mine Health and Safety Act, 1996 and its Regulations	Regulation 17(8) of the Mine Health and Safety Act Regulations state that "no person may erect, establish or construct any buildings, roads, railways, dams, waste dumps, reserve land, excavations or any other structures whatsoever within a horizontal distance of 100 (one hundred) metres from workings, unless a lesser distance has been determined safe by a professional geotechnical specialist and all restrictions and conditions determined by him or her or by the Chief Inspector of Mines are complied with."
The Explosives Act ,1956 (as amended)	The Explosives Act relates to the manufacture, storage, sale, transport, import, export and use of explosives. A Blast and vibration assessment has been commissioned, to determine the potential impacts of blasting associated with open pit mining.

4 Need and Desirability

Department of Environmental Affairs (DEA) published an updated Integrated Environmental Management Guideline on Need and Desirability in 2017.

According to these guidelines, the consideration of “need and desirability” in EIA decision-making requires the consideration of the strategic context of the proposed Project along with the broader public interest and societal needs. Furthermore, the development must not exceed ecological limits and the proposed actions must be measured against the short-term and long-term public interest to promote justifiable social and economic development.

The latest Guideline Document on the assessment of Need and Desirability (DEA, 2017) includes a number of questions, the answers to which should be considered in the EIA Process. These questions (as per the Guideline) have been summarised and grouped and answers to each are presented in Table 13.

Table 13: Need and Desirability of the proposed development

Theme	Specific Questions	Answer related to this Application
"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?	Section 7.10 of this Report presents a preliminary impact identification and assessment, including consideration of the potential impact of the proposed project on the ecological integrity of the area. At this phase of the application process, it is believed that the impacts are largely manageable through rehabilitation of the opencast areas.
	How were the following ecological integrity considerations taken into account? <ul style="list-style-type: none"> - Threatened and sensitive Ecosystems - Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs) - Conservation targets 	<p>The majority of the eastern section of the site is classified as falling within "Northern KwaZulu-Natal Moist Grassland" which has a conservation status of "Vulnerable", and a conservation target of 24% with only about 2% statutorily conserved in the uKhahlamba Drakensberg Park as well as in the Chelmsford, Spioenkop, Moor Park, Wagendrift, Ncandu Nature Reserves (Mucina & Rutherford, 2006).</p> <p>Large parts of the western section of the application area is classified as "Low Escarpment Moist Grassland" with a conservation status of "Least Threatened" (Target 23%, 2% Statutorily conserved with about 6% transformed).</p> <p>There is an area within the eastern portion of the application area classified as "Eastern Temperate Freshwater Wetlands" (Conservation target 24% with about 5% statutorily conserved and some 15% transformed, conservation status classified as "Least Threatened"). This wetland delineation has also been confirmed by preliminary specialist input received.</p> <p>The area South of the Vulintaba Road has been classified as a Critical Biodiversity Area (CBA), and the project infrastructure has been placed to avoid this area, with the exception of Pit 2 and Pit 3. These features cannot be re-located as they are determined by the location of mineable coal.</p> <p>The project layout has also attempted to avoid infrastructure placement in Ecological Support Areas (ESAs) delineated on the site, though this has not been possible in all instances and some ESA areas are directly affected by the layout.</p>
	How does the proposed development respond to the relevant framework documents? <ul style="list-style-type: none"> - Environmental Management Framework, - Spatial Development Framework 	<p>The Amajuba District Municipality (ADM) Environmental Management Framework (EMF) (Institute of Natural Resources, May 2019) recognises the Newcastle Local Municipality (NLM) as the economic hub of the district, with key economic activities of the ADM including commercial agriculture, coal mining and industrial manufacturing.</p> <p>The EMF for the NLM (Thornhill & Richardson, 2014) is in Draft format. It identifies the Project area as falling in a moderate sensitivity zone in terms of topography and agriculture, and</p>

Theme	Specific Questions	Answer related to this Application
	<ul style="list-style-type: none"> - Global and international responsibilities relating to the environment (e.g. RAMSAR sites, Climate Change, etc.). 	<p>Lower to moderate sensitivity in terms of biodiversity and hydrology. Combined environmental sensitivity was mapped as Low to Moderate.</p> <p>The EMF recognises Newcastle as the third-largest urban centre in KwaZulu-Natal, and the biggest municipality in the Amajuba District. It is categorised as a secondary or intermediary city which means that it plays an important role as a catalyst for development and a driver of economic growth (Thornhill & Richardson, 2014).</p> <p>The Newcastle Local Municipality Integrated Development Plan (2022/23 – 2026/27) (NLM, May 2022) delineates the Project Area as an economic support area which falls partly within the future urban edge (as delineated in the Spatial Development Framework for the Municipality). Resuscitation and expansion of the mining sector is identified as an activity that is key to local economic development.</p> <p>The site is not in close proximity to any RAMSAR sites.</p>
	<p>How will this development</p> <ul style="list-style-type: none"> - disturb or enhance ecosystems and/or result in the loss or protection of biological diversity, or pollute or degrade the biophysical environment? - What measures were explored to avoid negative impacts, or minimise and remedy (including offsetting) the impacts? - What measures were explored to enhance positive impacts? 	<p>Vegetation clearance associated with the proposed opencast mining and associated activities will disturb ecosystems and biological diversity on the site. Parts of the site have already been disturbed as a result of agricultural activities.</p> <p>Negative impacts can only be entirely avoided by the no-go option (i.e. if the project does not proceed). This would result in sterilisation of the mineral resource.</p> <p>Further discussion on management and mitigation is included in Section 8.2 and further discussion on alternatives is included in Section 5.</p> <p>Opportunity for offsets do exist, as the southern portion of the application area is identified as a Protected Area Expansion Strategy Focus Area and Critical Biodiversity Area and is not directly affected by the proposed Project Infrastructure.</p>
	<p>What waste will be generated by this development? What measures were explored to firstly avoid waste, and where waste could not be avoided altogether, to minimise, reuse and/or recycle or to safely treat and/or dispose of unavoidable waste?</p>	<p>The proposed opencast mining will be associated with topsoil, soft- and hard-overburden stockpiles, though these are not considered waste materials as they will be used in rehabilitation of the open pits once the resource has been exploited.</p> <p>Refer to section 2.3.5 for a description of waste that is expected to be generated, and how this waste will be managed.</p>

Theme	Specific Questions	Answer related to this Application
	<p>How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage? What measures were explored to avoid these impacts or minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?</p>	<p>An archaeological impact assessment has been commissioned for the Project, and numerous heritage resources were identified on the Project Site. Alternative layouts have been able to ensure that direct impacts to the majority of these resources are avoided. See section 5 for further discussion on the alternative layouts that were considered.</p> <p>A grave relocation process will have to be initiated by the Applicant for the graves occurring in the footprint of the proposed Pit D1.</p> <p>Specific procedures should be followed which includes social consultation. For graves older than 60 years, and unknown graves, an undertaker and archaeologist should be appointed. Permits must be obtained from the Burial Grounds and Graves unit of SAHRA. This procedure is quite lengthy and involves social consultation.</p>
	<p>How will this development use and/or impact on natural resources? What measures were explored to ensure responsible and equitable use of the resources? How have the consequences of the depletion of resources been considered? What measures were explored to avoid these impacts or minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?</p>	<p>The mineral resource to be mined is coal, which is a non-renewable resource. The product market is domestic and export. The Project is aimed at the extraction of the mineral resource, in accordance with the provisions of the MPRDA.</p> <p>Further resource use associated with the project relate to the use of diesel to power equipment and machinery. Rooftop solar will be implemented to supply electricity to offices and related facilities where possible.</p> <p>A detailed preliminary impact assessment is included in Section 8.3 of this report. Management and Mitigation Measures are discussed in Section 8.2. This will be expanded in the EIA-phase.</p>
	<p>Does the proposed development exacerbate the increased dependency on increased use of resources to maintain economic growth or does it reduce resource dependency? Do the proposed location, type and scale of development promote a reduced dependency on resources?</p>	<p>StatsSA reports that South Africa depends heavily on coal as a source of economic value, employment and energy (https://www.statssa.gov.za/?p=4820). It can't be said that the proposed project exacerbates dependence on increased use of resources to maintain economic growth, but it does not reduce resource dependency either.</p> <p>The Newcastle area has been associated with coal mining for many years, as is evident in the current and historical coal mining activities in the larger area, as well as the existing and abandoned coal-fired power stations in the surroundings.</p>
	<p>Does the proposed use of natural resources constitute the best use thereof? Is the use justifiable when considering intra- and</p>	<p>Coal mining is an important contributor to the South African economy. The Project involves the mining of the coal resources within the application area, which is the only use for the coal resources.</p>

Theme	Specific Questions	Answer related to this Application
	intergenerational equity, and are there more important priorities for which the resources should be used?	
	How were a risk-averse and cautious approach applied in identifying and assessing impacts?	Where possible, ecological impacts are avoided (for example by exclusion of the southern section of the application area from the layout, as this area is associated with CBAs). Further mitigation measures to reduce ecological impacts are discussed in Section 8.2.
	What are the limits of current knowledge and the risks associated therewith?	<p>Section 10 contains a detailed discussion on uncertainties, limitations and gaps in knowledge. Environmental Impact Assessment is by its very nature associated with some uncertainty. However, the use of qualified and reputable specialists in the compilation of this report and the EIA Report that will be compiled in due course reduces the level of uncertainty as all conclusions are based on sound and defensible scientific argument.</p> <p>This scoping report has not yet incorporated comments received from the public participation process, and will be updated with the comments received once the public review period has expired.</p>
	How will the ecological impacts of this development impact on people's environmental rights?	<p>Please refer to the detailed preliminary impact assessment in Section 8.2 of this Report. The impact assessment will be completed in the EIA phase, along with the compilation of the EMP.</p> <p>The project will negatively impact on the current land use, comprising some cultivated areas, some grazing areas and open land. The land owners will, however be compensated for this by the Mine.</p> <p>Positive impacts are generally associated with employment for future mine employees and the implementation of the Social and Labour Plan. Many of the people in the wider area are dependent on the coal mining industry for employment.</p>
	Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified resulted in the selection of the "best practicable environmental option"	<p>A detailed discussion on alternatives is included in Section 5 of this report.</p> <p>The project site is determined and delimited by the extent of the coal and no further site alternatives have been assessed. The type of mining to take place is also determined by the depth of the seams. The Project layout has been altered in attempts to avoid sensitive environmental features where possible.</p>

Theme	Specific Questions	Answer related to this Application
" Promoting justifiable economic and social development"	<p>What is the socio-economic context of the area in terms of:</p> <ul style="list-style-type: none"> - The IDP and any other strategic plans, frameworks of policies applicable to the area, - Spatial priorities and desired spatial patterns; - Existing land uses, planned land uses, cultural landscapes etc. - Municipal Economic Development Strategy ("LED Strategy") 	<p>The NLM IDP (NLM, May 2022) identifies that there has been a general decline in coal mining activity with Newcastle which has led to the shedding of jobs and increasing levels of unemployment within Newcastle. The same applies to agricultural activity. The NLM IDP recommends Promotion of coal mining activity through the NLMs Revenue Enhancement Strategy, as well as conservation of agriculturally valuable land to address this development challenge.</p> <p>The IDP further acknowledges mining as a major contributor to GDP and LED income, while agriculture is acknowledged as a significant contributor to the LED, household income and food security.</p> <p>The site currently contains some agricultural fields and grazing land, and also contains areas that are still in a fairly natural state.</p>
	<p>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?</p> <p>Will the impact be socially and economically sustainable in the short- and long-term?</p>	<p>Please refer to the Impact Assessment in Section 8.2.9.</p> <p>A socio-economic impact assessment has also been commissioned as part of the EIA-phase. The direct negative socio-economic impacts of the project relate primarily to the loss of agricultural land of the land owners and the workers currently employed on the affected farms, and the change in land use from agriculture to mining.</p> <p>The project could also have a negative socio-economic impact on surrounding tourism-related activities, for example, the Grey Goose Lodge that may have a clear view of the proposed Project elements. A visual impact assessment has been commissioned as part of the EIA-phase.</p> <p>The project will be associated with job-opportunities that will accrue to locals where the required skills are available locally.</p> <p>Existing households in close proximity to the proposed Opencast Areas will have to be relocated in consultation with the residents and land owners. The Applicant must provide current residents with alternative accommodation a safe distance away from the proposed pit areas.</p> <p>The Project will be associated with the implementation of the Social and Labour Plan (SLP) including LED projects and skills development programs (to be approved).</p>

Theme	Specific Questions	Answer related to this Application
		<p>With proper rehabilitation concurrent to the opencast mining, it is possible to restore the land to productive agricultural land, ensuring equitable impact distribution and long-term sustainability. Strict implementation of the rehabilitation plan, and strict implementation of pollution prevention technologies during mining will be essential in achieving this objective.</p>
	<p>In terms of location, describe how the placement of the proposed development will</p> <ul style="list-style-type: none"> - 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 - compliment other uses in the area - be in line with the planning for the area - optimise the use of existing resources and infrastructure - 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 - the investment in the settlement or area in question will generate the highest socio-economic returns 	<p>The location of the project is determined by the location of coal resources and the mineral rights held by the Applicant. The project will generate employment and is located in close proximity to residential areas in Newcastle town, reducing transport distances (for goods and services sourced from Newcastle, and for the labour pool, to be sourced from Newcastle where the necessary skills are available locally).</p> <p>The project compliments the existing mining land uses in the greater municipal area but is not complimentary of the existing agricultural or tourism land uses of the site.</p> <p>Planning documents for the area vary somewhat with some reports including the project site as future residential expansion area and others including it as an agricultural area. It is noted that the Mine is not a permanent feature and will be rehabilitated. Life of Mine for the opencast sections is 15 years, after which it is anticipated that alternative post-closure land uses can be implemented.</p> <p>Existing roads, river crossings and boreholes will be used where possible. There are also existing Eskom powerlines that traverse the site. The project proposes to use existing buildings as site offices for the first 8 years of operations, optimising the use of existing infrastructure.</p> <p>No bulk infrastructure development is associated with the project. The project is not associated with residential land uses and therefore neither encourages or discourages urban sprawl.</p> <p>The project will be undertaken in accordance with the mining right, EMPr and SLP. The project does not contribute to the correction of historically distorted spatial patterns of settlement. The project will not be undertaken prior to the relevant approvals are obtained. The application process is undertaken to ensure management measures are put in place to ensure environmentally sustainable development.</p> <p>The Mine's SLP will be implemented, once approved. The investments that the mine must make to the local communities will therefore be according to the approved SLP.</p> <p>The Newcastle area has a rich mining history, although the site itself is associated more with agriculture and tourism in terms of the sense of place. Sense of place will be analysed in more</p>

Theme	Specific Questions	Answer related to this Application
	<ul style="list-style-type: none"> - 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 - in terms of the nature, scale and location of the development promote or act as a catalyst to create a more integrated settlement? 	<p>depth as part of the Visual Impact Assessment in the EIA phase. There are various heritage resources on the project site. The development layout has been altered to avoid these resources where possible. Where avoidance is not possible, the necessary processes will be followed to authorise re-location of these resources.</p> <p>The project will not act as a catalyst to creation of integrated settlements as it is not associated with residential land use.</p>
	<p>What measures were taken to pursue environmental justice and equitable access to environmental resources, benefits and services so that adverse environmental impacts shall not be distributed so as to unfairly discriminate against any person, (who are the beneficiaries and is the development located appropriately)?</p> <p>What measures were taken 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?</p>	<p>The beneficiaries of this project are those local residents successful in their potential applications for new job opportunities at the Mine.</p> <p>The development location is determined by the location of the coal resource. It is acknowledged that the current land owners and residents, including farm workers will be adversely impacted by the opencast mining and must be duly compensated by the Mine.</p> <p>The project does not promote unfair discrimination against any group of people. Employment opportunities will accrue to local people where the necessarily skills are available in local communities</p>
	<p>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?</p>	<p>The Mine will be managed in accordance with the Mine Health and Safety Act and other relevant health and safety legislation.</p>
	<p>What measures were taken to:</p> <ul style="list-style-type: none"> - ensure the participation of all interested and affected parties, 	<p>Please refer to Section 6 of this report and Appendix C where the public participation process to date, and the proposed future activities related to public participation are described in detail.</p>

Theme	Specific Questions	Answer related to this Application
	<ul style="list-style-type: none"> - 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 - 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. 	<p>This is the draft scoping report, and is being made available to interested and affected parties for review and comment. A public meeting will also be held to overcome any barriers to this process due to illiteracy or lack of access to technology.</p>
	<p>Considering the interests, needs and values of all the I&APs, 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)?</p>	<p>The Mine will employ people of varying skills levels and also offer skills development programs as part of their SLP commitments.</p> <p>Where the necessary skills are available in local communities, preference will be given to employ local people.</p>
	<p>What measures have been taken to ensure that workers will be informed of work that might be harmful to human health or the environment or dangerous, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected?</p>	<p>An Environmental Awareness Plan will be compiled as part of the EMPr.</p> <p>The Mine must appoint a Health and Safety Manager who will be responsible to inform workers of the risks associated with their work, as well as their obligations and rights in terms of the Mine Health and Safety Act and Basic Conditions of Employment Act and other relevant legislation and best practice guidelines.</p>

Theme	Specific Questions	Answer related to this Application
	<p>Describe how the development will impact on job creation in terms of, amongst other aspects:</p> <ul style="list-style-type: none"> - 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.). 	<p>A socio-economic impact assessment will be completed as part of the EIA-phase. The assessment will provide more insight into the direct and indirect job opportunities and economic benefits of the project.</p> <p>For the operational phase (long-term, sustainable job opportunities), the following labour figures are expected:</p> <ul style="list-style-type: none"> - 6 Management staff; - 89 Mining staff (including superintendents, supervisors and operators); - 11 Mineral Resources Management (MRM) staff; - 11 Health, Safety and Environment (HSE) staff; - 35 Engineering staff. <p>As far as possible, these jobs will be taken up by local community members, as a number of the required skills are expected to be available locally. Only if a skill is required that is not available locally will employment opportunities accrue to people outside of the immediately affected or adjacent areas.</p> <p>Where possible, skills transfer and skills development programmes will be implemented to train local job seekers and develop those skills that are not available locally yet.</p> <p>Due to preference of employment being given to locals, and the relatively close proximity of the Project to the town of Newcastle, travel distance from mine workers' homes to the mine will be as little as possible.</p> <p>The existing agricultural activities on the site also generates some employment, which will be lost to the mining operation. The number of employees on the affected farms is not presently known but will be assessed during the socio-economic impact assessment</p>
	<p>What measures were taken to ensure:</p> <ul style="list-style-type: none"> - 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 	<p>Various government departments, the competent authority (DMRE) and commenting authorities were informed of the proposed project and invited to participate in the public participation process (Section 6).</p> <p>Please refer to Section 3 for a discussion on the policy and legislative context relevant to this project.</p> <p>There will always be a level of conflict between authorities mandated to promote the development of Mineral Resources (like the DMRE) and authorities mandated to promote</p>

Theme	Specific Questions	Answer related to this Application
	resolved through conflict resolution procedures?	conservation. The competent authority (DMRE) must take the inputs of the commenting authorities into account in reaching their decision on an application. NEMA affirms in its preamble that “the environment is a functional area of concurrent national and provincial legislative competence, and all spheres of government and all organs of state must co-operate with, consult and support one another”.
	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?	The application process that is being undertaken aims to identify potential environmental impacts of the proposed Project, and measures to mitigate those impacts, to promote sustainable development. Section 2(4)(o) of NEMA confirms that “The environment is held in public trust for the people, the beneficial use of environmental resources must serve the public interest and the environment must be protected as the people's common heritage”.
	Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left?	Please refer to the preliminary impact assessment and impact management measures detailed in Section 8.2 of this Draft Scoping Report. More detailed impact assessment and corresponding mitigation will be identified during the EIA-phase and EMPr compilation. Every attempt is made to ensure the mitigation measures are practical. The applicant will be required to sign-off on the EMPr, which will become legally binding on the applicant once approved. Concurrent rehabilitation, as is proposed for this project, reduces the long-term environmental legacy and management burden although the groundwater impact assessment, commissioned as part of the EIA, will be required to identify potential long-term impacts of the project and identify the management measures required.
	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?	The applicant has applied for a mining right. If granted, the Mine will be obligated under the MPRDA and NEMA to annually undertake a closure cost assessment and provide a financial guarantee to the DMRE for closure and rehabilitation.

5 Evaluation of Alternatives

The concept of alternative can be defined as a possible course of action, in place of another, that would meet the same purpose and need (DEAT, 2004).

The purpose of the Project is to economically mine the coal reserves on the application area, for sale to market. The need and desirability for the project is discussed in Section 4. Alternatives that do not meet the same purpose and address the same need as the development proposal will not be discussed further.

5.1 Process to identify and assess alternatives

Consideration of alternatives is one of the most critical elements of the environmental assessment process (DEAT, 2004). Key criteria that must be considered when identifying alternatives are that they should be “practicable, feasible, relevant, reasonable and viable”.

The Department of Environmental Affairs (DEA) identified six potential categories of alternatives and emphasises that “the number of alternatives that are selected for an assessment should be determined by the range of potential alternatives that could be reasonable and feasible” (DEA, 2018). The alternatives that have been considered are discussed in these terms and grouped according to the categories defined by DEA.

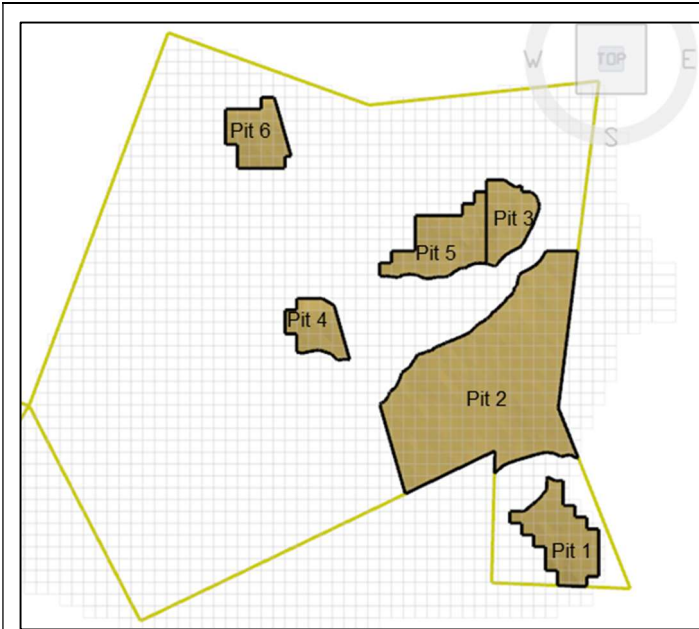
5.2 Location / Route alternatives

The location of mining projects is dictated by the location of minerals that the project proponent has mineral rights over. In this instance, Minetek Resources holds the Prospecting Rights for coal of the application area and has applied to graduate their prospecting right to a mining right. The presence and economic viability of the coal have been confirmed by the prospecting results.

The location of the proposed mining pits is determined by the coal qualities, strip-ratios and depth to the coal. Existing features on the site, such as the Vulintaba Road and Eskom powerlines along with a 100m buffer were excluded from the pit areas, in consideration of Regulation 17(8) of the MHSA Regulations. The presence of watercourses was also considered.

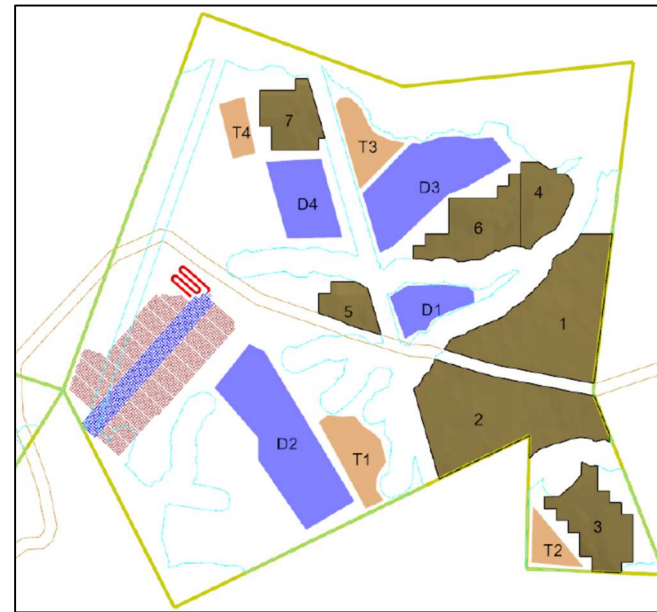
All other activities and infrastructure on the site can be in various possible locations.

The evolution of the Project Layout is explained overleaf.



Initial locations of the proposed open pits as received from the Mining Engineer, Pits were delineated based on the depth to coal and stripping ratios.

Major shortcomings – no other infrastructure or underground potential indicated.

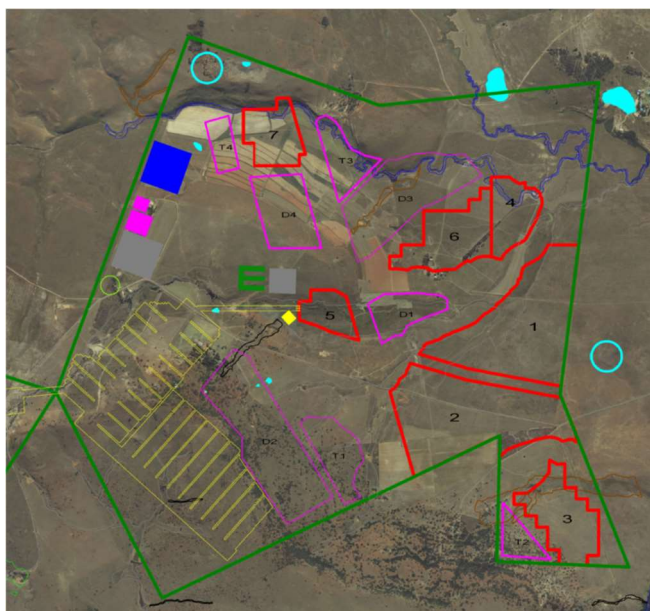


Amended layout received from the Mining Engineer, with the Application area outlined in yellow, the mine pits indicated in brown, numbered 1 – 7, and potential locations for overburden dumps (Blue, D1 – D4) and topsoil stockpiles (Pink, T1 – TT4).

Note the initial Pit 2 has now been split into two separate pits, to accommodate the Vulintaba Road and buffer.

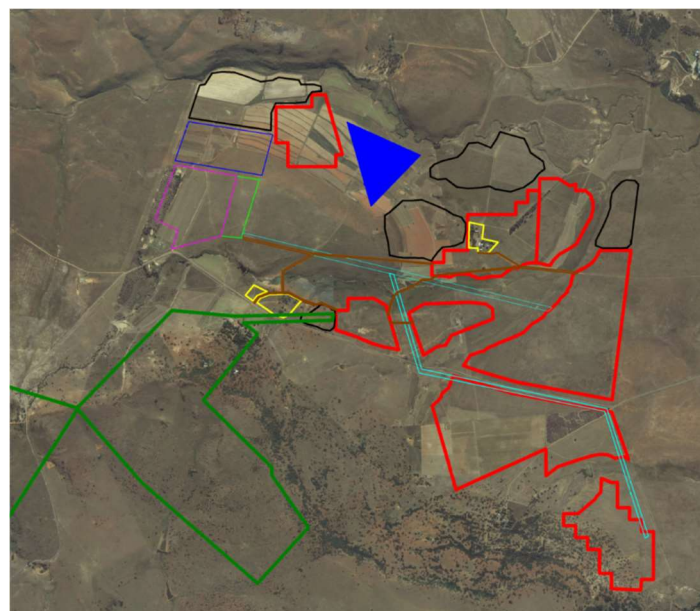
Potential future underground section is also indicated in this version.

Major shortcomings – T1, T2 and D2 are located on steep slopes, impractical for dump locations. No supporting infrastructure located. D1 is located over a potential high-value mining target.



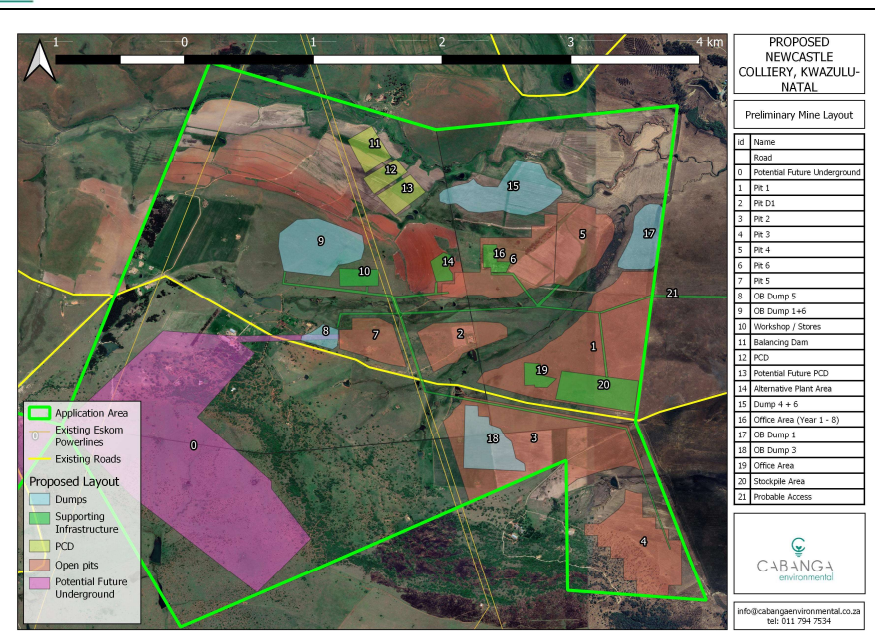
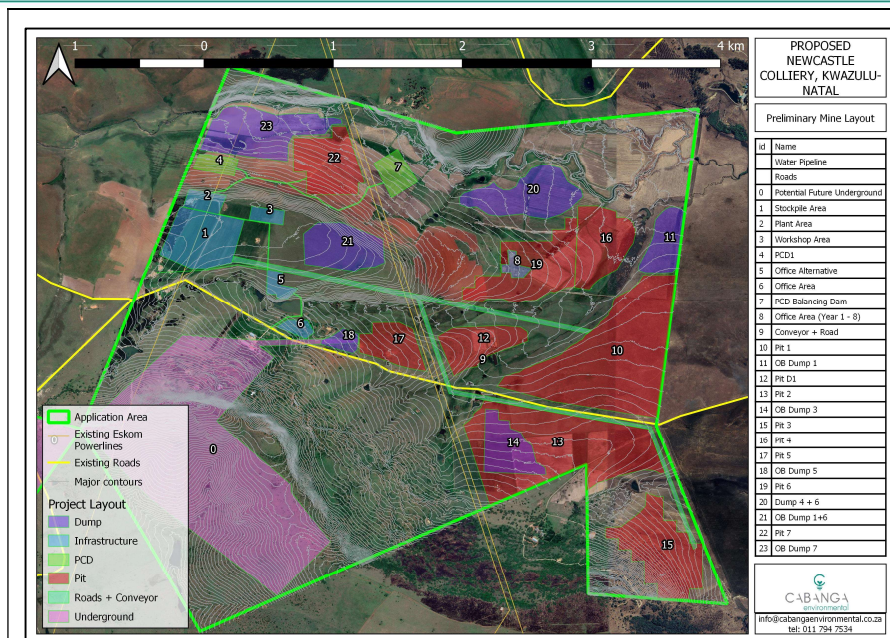
The next iteration of the Block Plan indicates the pits in red outline (numbered 1 – 7) with potential dumps indicated in purple and pink (D1 – D4 and T1 – T4). Potential future underground mining areas are indicated in yellow. This plan further indicates areas for offices, workshop complex, change house, parking, substation, and pollution control dams (PCDs, blue circles).

Major shortcomings - T1, T2 and D2 are located on steep slopes, impractical for dump locations. D1 is located over a potential high-value mining target. No stockpile or crushing and screening plant areas indicated. One PCD is located outside of the application area. The other PCD is located on the opposite side of the watercourse to the infrastructure areas.



Considering inputs from the engineering and environmental team, the impractical dump locations were removed from this layout proposal, and additional dump locations identified (black outlines). Pit D1 is now indicated. The plant and stockpile area were added along with two potential locations for a PCD / balancing dam (blue) to assist with operational water balance maintenance. A conveyor has been indicated as a preferred method of transporting Run of Mine from the pits to the stockpile / plant area.

Major shortcomings – the dump and infrastructure sizes indicated on this layout were based on available space on site, and not the actual sizes required for these features of the Project. Location of heritage resources were not considered.



The next iteration of the layout re-located some of the dumps to avoid heritage resources that were identified on site.

Infrastructure sizes shown on this plan were confirmed with the Mine engineering teams.

Alternative sites for the office area have been identified, to provide mine management with some flexibility and optimise the use of existing buildings, and previously disturbed areas.

Shortcomings: some of the pits encroach on delineated wetlands and their buffer zones. Pit 2 and 3 are in CBAs. OB Dump 1, some of the pits and infrastructure are in ESAs. Some of the infrastructure unavoidably cross over delineated wetlands.

The layout was again adjusted to minimise impacts of the Project on the existing farming operations and homesteads in the west of the focus area. Optimal use is made of backfilled pits for placement of infrastructure as the mine develops. It is believed that this proposed project layout is the most optimal, as it:

- Avoids sensitive environmental features such as graves and wetlands as far as possible;
- Avoids Critical Biodiversity Areas as far as possible;
- Avoids steep slopes of the site, that would be associated with increased erosion risks;
- Minimises the footprint as far as possible, by ensuring infrastructure areas are limited to their required sizes.

5.3 Activity / Technology Alternatives

Mining methods are largely determined by the nature and depth of the coal to be mined. There are areas in the eastern portion of the application area that are targeted for open pit mining, while deeper coal in the western sections must be mined via underground methods (open pit methods would be un-economical).

It is typically desirable to ensure concurrent backfilling of mined-out sections, as mining progresses in an open pit mining operation, to reduce the volume of pits that are open at a given time. Concurrent rehabilitation reduces visual impacts and the risk of groundwater contamination arising from mining (although it is expected that the risk will not be negated entirely). Concurrent backfilling of pits is only possible once all of the seams occurring in the pit footprint have been exploited. Additionally, it is not practical to mine only one pit at a time, as the coal qualities and quantities in different pits vary, and the mine is often forced to blend coal from different pits to meet product specifications.

The current Mine design of the Newcastle Project ensures that rollover mining will take place in the open pits, to some degree at least, due to space constraints of the site. For example, the mining of Pit 2 is scheduled from year 3 to year 9 of operations, with a portion of the footprint of Pit 2 earmarked for stockpiling of overburden from the mining of Pit 3 (from year 6 to year 9). This implies and guarantees that Pit 2 will be backfilled concurrent to mining.

For the future underground operations, additional investigations into the feasibility of mining the coal will have to be undertaken. Possible alternatives include bord-and pillar methods using continuous miners, with consideration of pillar extraction on retreat. Given the activities on surface it is unlikely that pillar extraction will be considered.

It is expected that the proposed mine's electricity requirements will be met by Eskom, but also that back-up power supply via diesel generator will be available on site. Further, electricity requirements for offices and associated administrative facilities could be met by rooftop solar installations, and the Applicant will implement such renewable energy solutions as far as possible.

Proposed coal processing on site is limited to crushing, screening, and sorting activities. Run of Mine coal is too big and contains too much waste material (rocks, sub-quality coal etc.) to be transported off-site economically, and the use of mobile, in-pit crushing plants is considered. As an alternative, on-site coal beneficiation through a dense-medium separation (DMS) wash plant or other coal washing technologies could also be considered. The reason for excluding a wash plant from site, is primarily related to the waste generated by such plants and the environmental sensitivities and space constraints of the site, limiting the options for construction of a Discard Dump, or alternative facilities for the permanent storage of mineral waste resulting from a coal washing plant.

Transport of coal from the pits to the processing area via haul roads by trucks was originally considered optimal. The preferred technology includes the use of coal conveyors from the pits to the plant area. This technology is expected to reduce dust generation from dirt roads on site.

5.4 Operational and Scheduling Alternatives

These are dependent on the type of operation but may include operating hours and designating set times for specific activities.

It is proposed that construction be restricted to daylight hours to reduce safety risks and noise and visual impacts associated with night-time activities. Scheduled deliveries of construction materials to site should be during normal working hours as far as possible.

Once operational, the Mine will operate 24-hours per day, 7 days per week, with scheduled shut-downs taking place for maintenance. The mine will operate in various shifts.

Dust suppression via watering cart is recommended on gravel road areas, the use of dust binding agents should be considered where dust generation is significant. This is considered a mitigation measure and has not been discussed further under Alternatives.

5.5 No-development option

If the Project is not developed, the *status quo* will prevail on site (see section 7). Negative environmental and social impacts associated with the Project will not be realized, but neither will any of the positive socio-economic impacts associated with job creation and the implementation of the Social and Labour Plan.

Not proceeding with the Project will result in the sterilisation of the mineral resource in contravention of the objects of the MPRDA. However, there is nothing that prevents third parties from applying for a mining right once the current prospecting right expires, and thus no guarantee that the Project will not be pursued by others. Considering the number of parties who have held the prospecting right in the past, another party is almost certain to apply for these rights if not awarded to Minetek Resources.

If only some of the pits are developed, the economic feasibility of the Project as a whole will need to be re-assessed by the Mine Engineering Team.

6 Public Participation

The latest Public Participation Guideline in terms of the NEMA was published by the Department of Environmental Affairs in 2017 (DEA, 2017). The NEMA requires the participation of all Interested and Affected Parties (I&APs) in environmental governance (Section (2)(4)) and holds that the beneficial use of environmental resources must serve the public interest. Decisions that may affect the environment, have to include sufficient opportunity for public participation.

The public participation process (PPP) aims to involve the authorities and I&APs in the project process; and determine their needs, expectations and perceptions. An open and transparent process will be followed at all times and is based on the reciprocal dissemination of information.

The PPP is designed to provide sufficient and accessible information to all I&APs in an objective manner to assist them to:

- Raise issues of concern and suggestions for enhanced benefits;

- Contribute local knowledge and experience; and
- Verify that their issues have been and will be captured.

A comprehensive public participation report is included in Appendix C to this report. In summary, the following steps have been undertaken:

- Identification of stakeholders
- Notification of stakeholders:
 - Direct notification via e-mail, post and fax;
 - Direct notification through on-site consultations;
 - Publication of newspaper adverts in local publication;
 - Display of posters at the proposed development site and other prominent locations in the vicinity of the site.

The abovementioned notification documents present details of the application and EIA process, described the nature and location of the proposed project, described the PPP associated with the applications and gives details of the EAP where further information can be obtained.

6.1 Public Participation Process to be undertaken

The PPP going forward will comprise the following phases / steps:

1. Make the Scoping Report (this report) available in digital and hard copy to I&APs for review and comment for a minimum of 30 days.
2. During the review period, host a Scoping Phase public meeting to inform I&APs of the proposed projects and application processes, and record their questions, comments and concerns to be addressed in the EIA Phase.
3. Update the Scoping report with comments received and submit the updated report, including the plan of study for EIA, to the DMRE for consideration.
4. Once the DMRE approves the Scoping Report (including the plan of study for EIA), compile the EIA Report and EMPr and similarly make the reports available to I&APs for review and comment for a minimum of 30 days.
5. During the comment period, host an EIA-phase public meeting to present the findings of the specialist assessments and EIA/EMPr to I&APs, answer their previous questions and gather any additional comments. Incorporate I&AP comments into a final EIA report and EMPr for submission to DMRE.
6. Once the DMRE reaches a decision on the EIA and EMPr, and communicates their decision to the Applicant, registered I&APs will be notified of the decision, reasons for the decision, and the appeal process that I&APs may follow if they do not agree with the decision or a part thereof.

Please refer to Appendix C for additional details and proof of the public participation undertaken to date.

7 Existing Site Attributes

A number of specialist assessments have been commissioned to form part of the EIA Process, as discussed in more detail in Section 9.2. This section of the report will therefore be expanded as the project progresses with information from the specialist assessments. Some of the specialist studies have already commenced and information from the specialist team is incorporated in this section where available, and referenced accordingly. The specialist studies will be included as appendices to the EIA Report.

Just as a project is associated with certain impacts on the environment where it is undertaken, the existing environment can also influence a proposed development in terms of design, location, technology and layout. It is therefore important to define the environmental baseline conditions (*status quo*) or context of a proposed development site.

This section describes the environmental attributes associated with the site focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects. Information is presented on different scales as relevant to the information that is available:

- Regional scale – the areas, land uses and communities surrounding the site including, in some cases, the larger municipal area;
- Local scale – the land in the immediate vicinity of the Project; and
- Site-specific – the site proposed for the development of the Project.

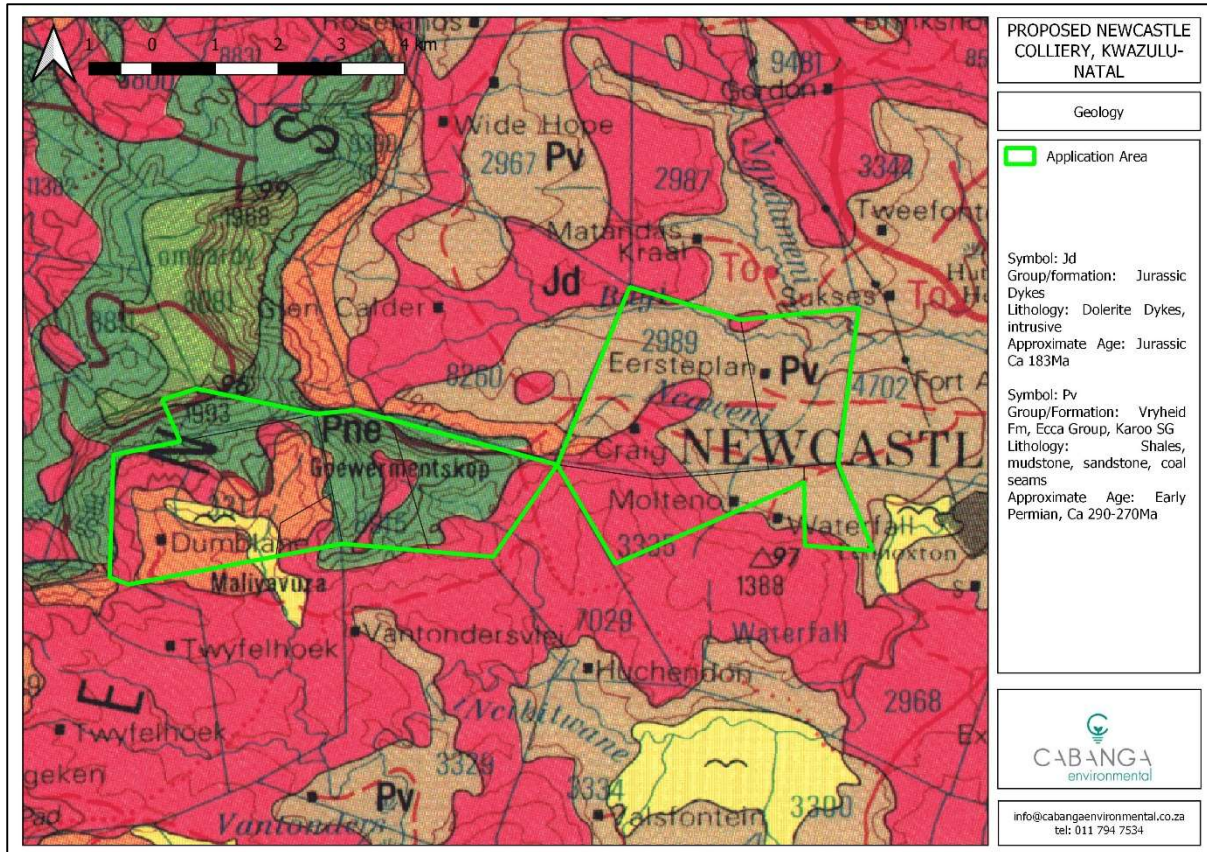
7.1 Geology, physiography and topography

The regional geology of the area is shown in Plan 6 (from the Geological Survey 1: 250 000 map 2728 Frankfort).

The site lies in the Karoo basin where the lower Karoo Supergroup strata are exposed. Along rivers and streams young, reworked sands and alluvium overly the older strata. The Karoo Supergroup rocks cover a very large proportion of South Africa. During the Carboniferous Period several ice sheets covered most of South Africa, forming fine-grained sediments in a large inland sea as the ice melted and the landmass shifted northward. These are the oldest rocks in the system and are exposed around the outer part of the ancient Karoo Basin, and are known as the Dwyka Group. They comprise tillites, diamictites, mudstones, siltstones and sandstones that were deposited as the basin filled. This group has been divided into two formations with Elandsvlei Formation occurring throughout the basin and the upper Mbizane Formation occurring only in the Free State and KwaZulu Natal. Overlying the Dwyka Group rocks are rocks of the Eccca Group that are Early Permian in age. There are eleven formations recognised in this group including the Vryheid Formation. All of these sediments have varying proportions of sandstones, mudstones, shales and siltstones and represent shallow to deep water settings, deltas, rivers, streams and overbank depositional environments. Large exposures of Jurassic dolerite dykes occur throughout the area. These intruded through the Karoo sediments around 183 million years ago at about the same time as the Drakensberg basaltic eruption (Bamford, 10 December 2022).

Mucina & Rutherford (2006) classifies the dominant vegetation type (Northern KwaZulu-Natal Moist Grassland) as comprising Mudstones, sandstones and shales of the Beaufort and Eccca

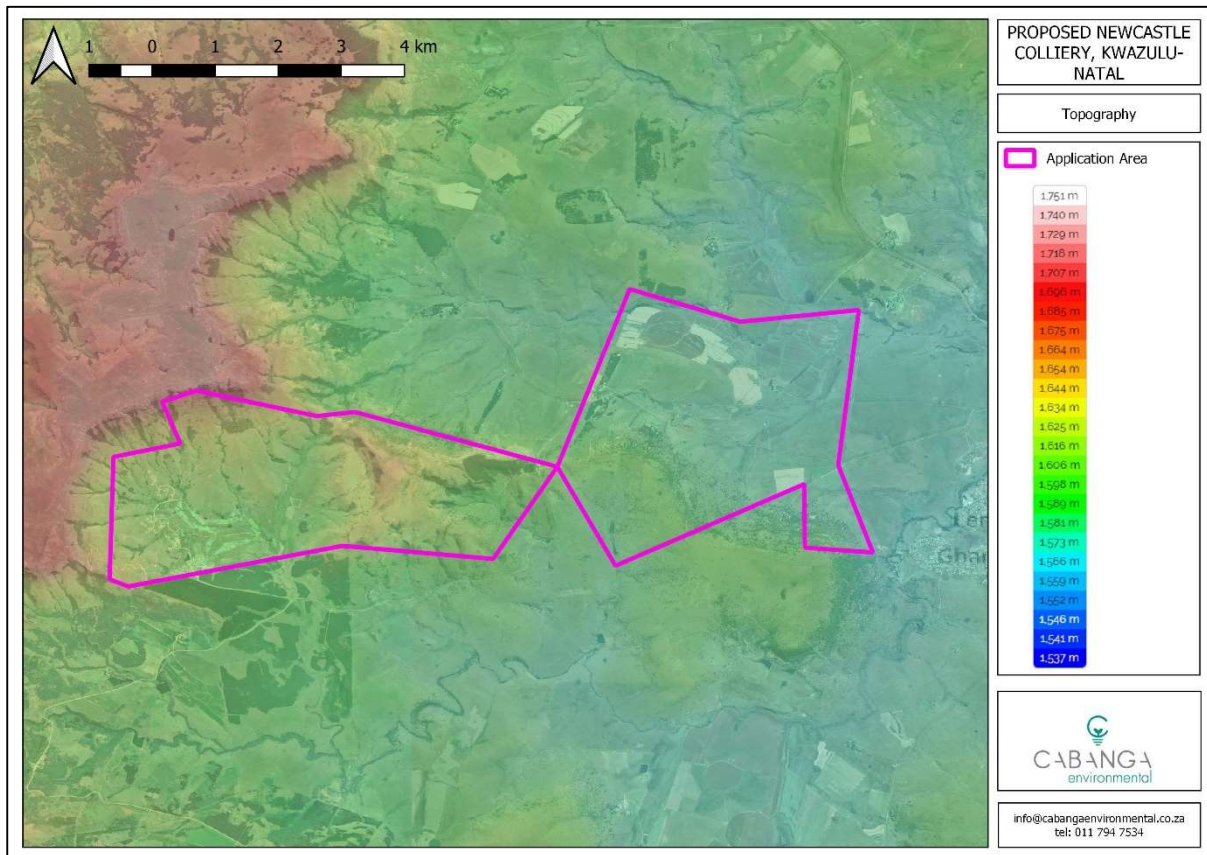
Groups of the Karoo Supergroup intruded by dolerites of Jurassic age. Land types include Bb, Ac, Fa and Ca.



Plan 6: Geology of the Project Area

The regional topography associated with the Project (Plan 7) shows distinct topographical high points to the west of the Project Area, gradually flattening out towards the town of Newcastle in the east. The topography also rises distinctly in the south of the Project Area.

On the eastern portion of the project site (where surface activities are proposed), elevation ranges from approximately 1368 metres above mean sea level (mamsl) in the west, 1284 mamsl in the south, to approximately 1215 mamsl on the eastern perimeter and 1210 mamsl in the north. The landscape is characterised as hilly and rolling landscapes (Mucina & Rutherford, 2006).



Plan 7: Topography

7.2 Climate and meteorology

The area is characterised by summer rainfall occurring mostly in the form of thunderstorms with frequent mist on hilltops in spring and early summer. Summer droughts are also frequent, with summers considered warm to hot. Winters are often associated with severe frost occurring about 20 days per year. (Mucina & Rutherford, 2006). The Mean Annual Precipitation (MAP), Mean Annual Evaporation (MAE), and Mean Annual Temperature (MAT) according to various sources are indicated in Table 14

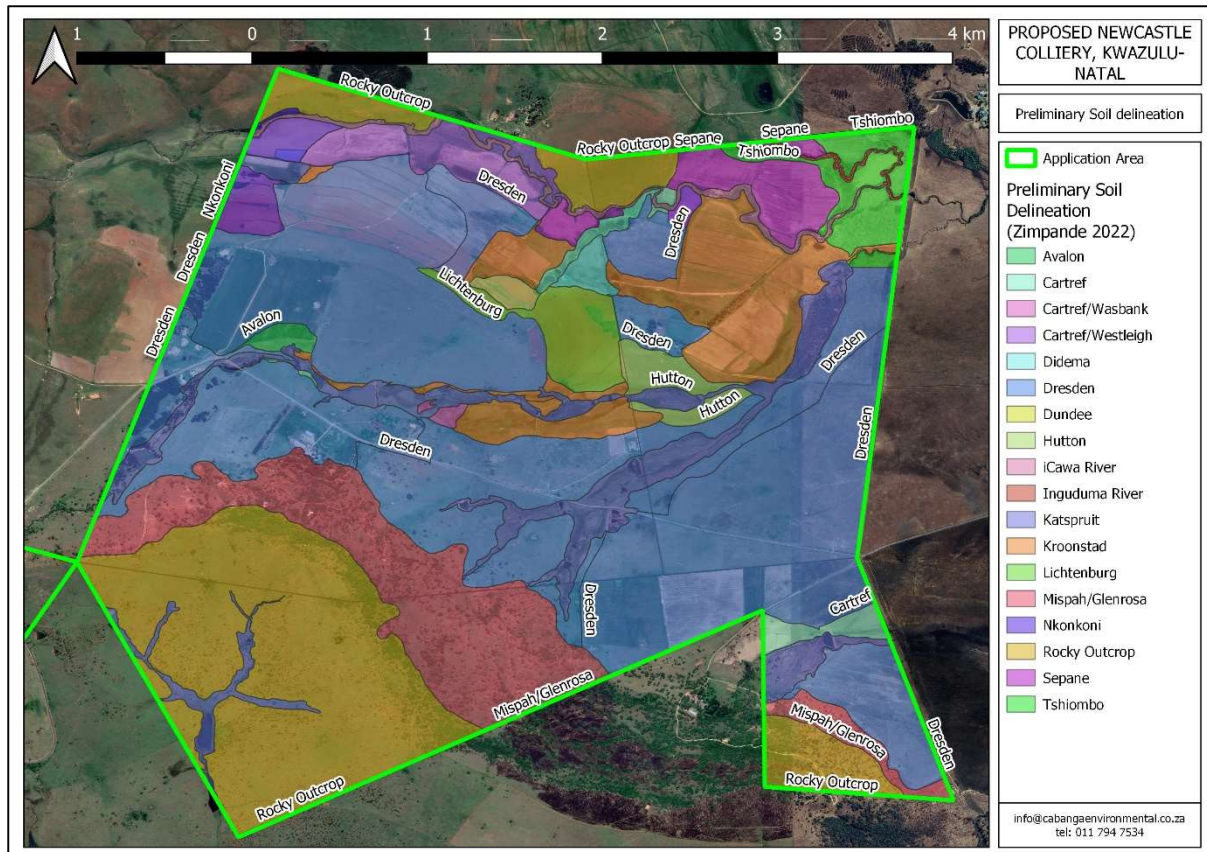
Table 14: MAP, MAE and MAT according to different sources

Source	MAP	MAE	MAT
(Mucina & Rutherford, 2006)	840mm	1895mm	16.2°C
www.meteoblue.com	726mm	Not reported	17.8°C
https://en.climate-data.org	895mm	Not reported	16°C

7.3 Soils, land use and land capability

Based on preliminary soil delineations of the Project Site (Zimpande, December 2022), rocky outcrops dominate in the far south of the application area (outside of direct footprint). Mispah/Glenrosa soils occur on the slopes of the mountain with Dresden soils dominant in the

valley. The wetland areas are characterised predominantly by Katspruit and Kroonstad Soils (Plan 8).



Plan 8: Soil types

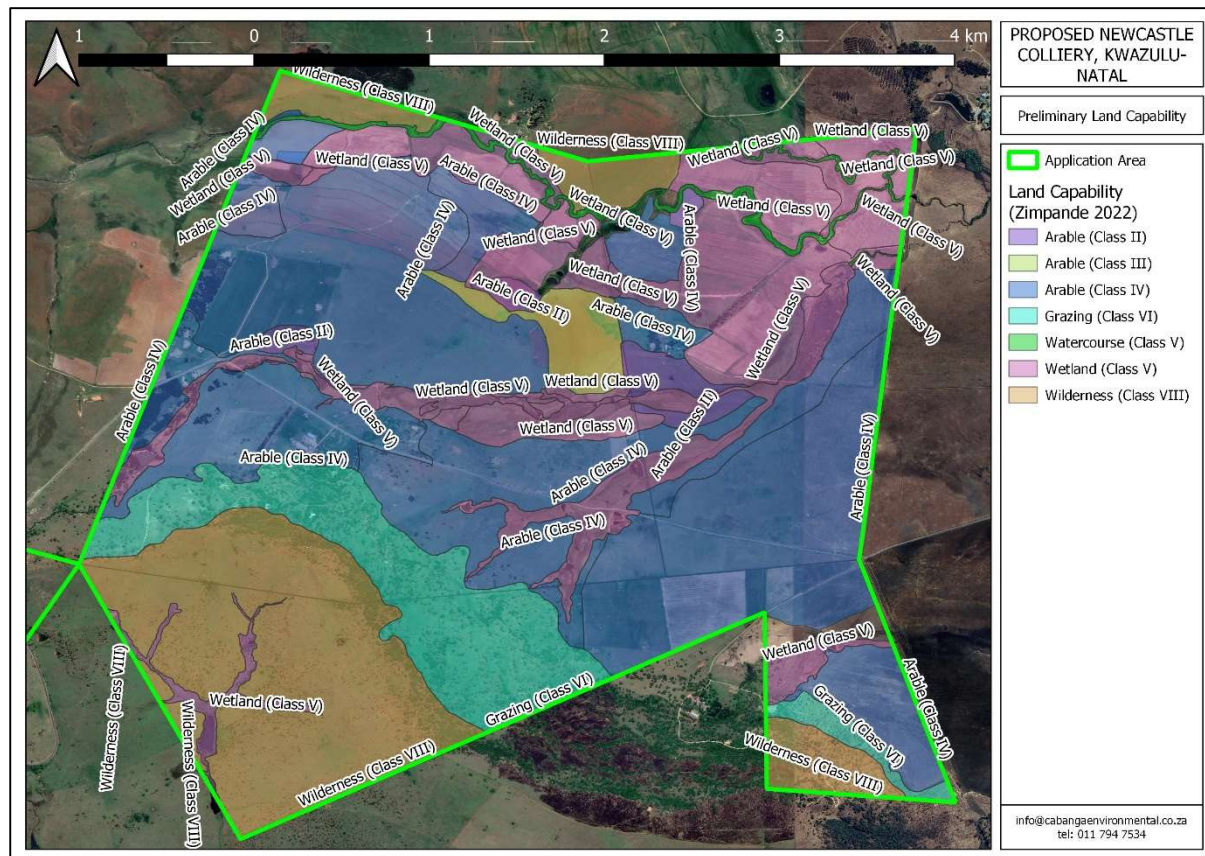
Land Capability (Plan 9) varies from Arable (Class II) to Wilderness (Class VIII), as summarised below and in Table 15.

- **Arable (Class II):** These soils have slight limitations restricting their use.
- **Arable (Class III):** These soils have moderate limitations to agricultural cultivation.
- **Arable (Class IV):** These soils have severe limitations to agricultural cultivation such as a shallow plough layer. Careful management is required. This can be overcome by breaking of the plough layer.
- **Wetland (Class V):** These soils have wetness limitations as they are prone to waterlogging conditions, not favourable for most cultivated crops.
- **Watercourse (Class V):** Associated with rivers and streams.
- **Grazing (Class VI):** These soils have severe limitations and thus limiting them to pasture, rangeland, forestland and wildlife.
- **Wilderness (Class VIII):** Soils and miscellaneous areas, mostly suited for recreation, wildlife and support of the visual landscape.

Table 15: Land Capability Classification (Smith, 2006)

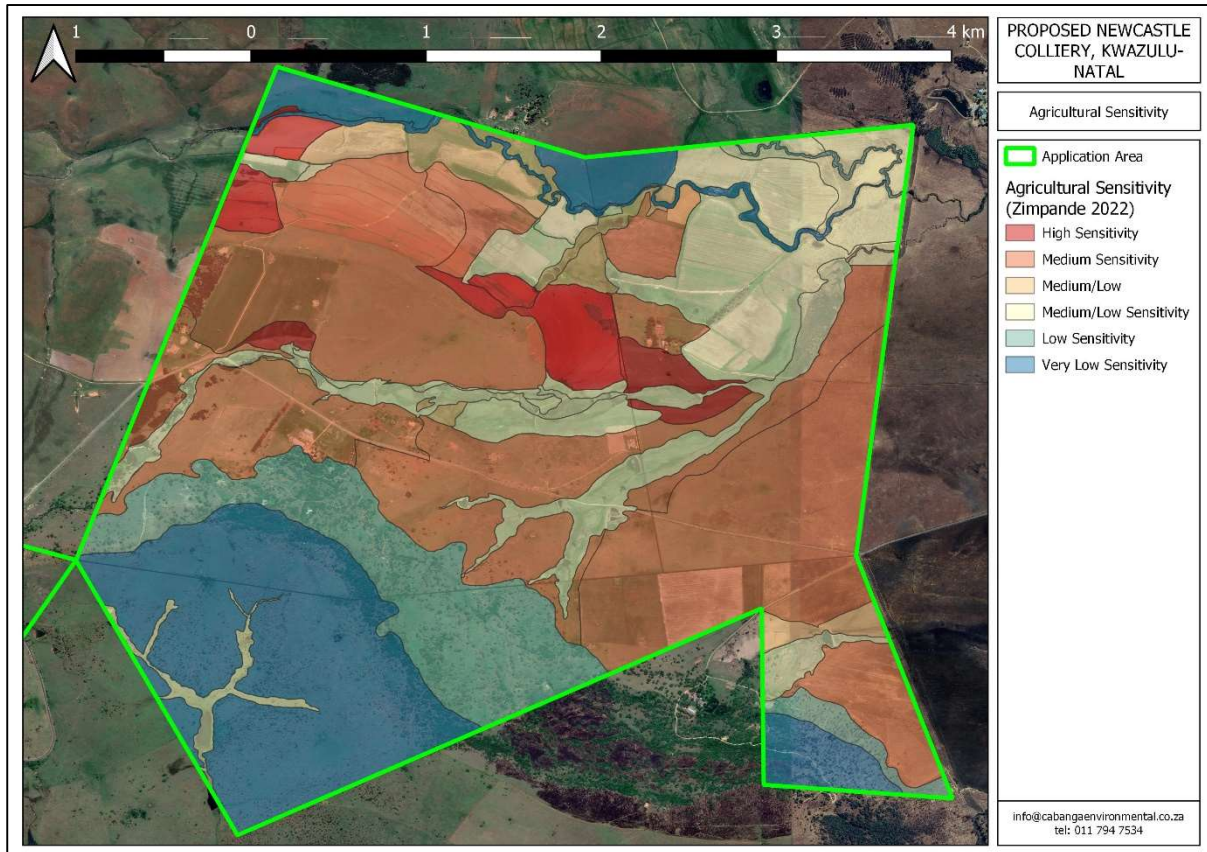
Land Capability Class	Increased Intensity of Use									Land Capability Groups
	W	F	LG	MG	IG	LC	MC	IC	VIC	
I	W	F	LG	MG	IG	LC	MC	IC	VIC	Arable Land
II	W	F	LG	MG	IG	LC	MC	IC		
III	W	F	LG	MG	IG	LC	MC	IC		
IV	W	F	LG	MG	IG	LC				
V	W		LG	MG						Grazing Land
VI	W	F	LG	MG						
VII	W	F	LG							
VIII	W									Wildlife

W – Wildlife	MG – Moderate Grazing	MC – Moderate Cultivation
F – Forestry	IG – Intensive Grazing	IC – Intensive Cultivation
LG – Light Grazing	LC – Light cultivation	VIC – very intensive cultivation



Plan 9: Land Capability

Low-lying areas of the site, typically associated with watercourses and wetlands, have a Medium-low agricultural sensitivity, with the higher lying areas associated with rocky outcrops considered low or very low agricultural sensitivity. The majority of the site is regarded as having a medium agricultural sensitivity with some high-sensitivity areas also delineated (Plan 10).



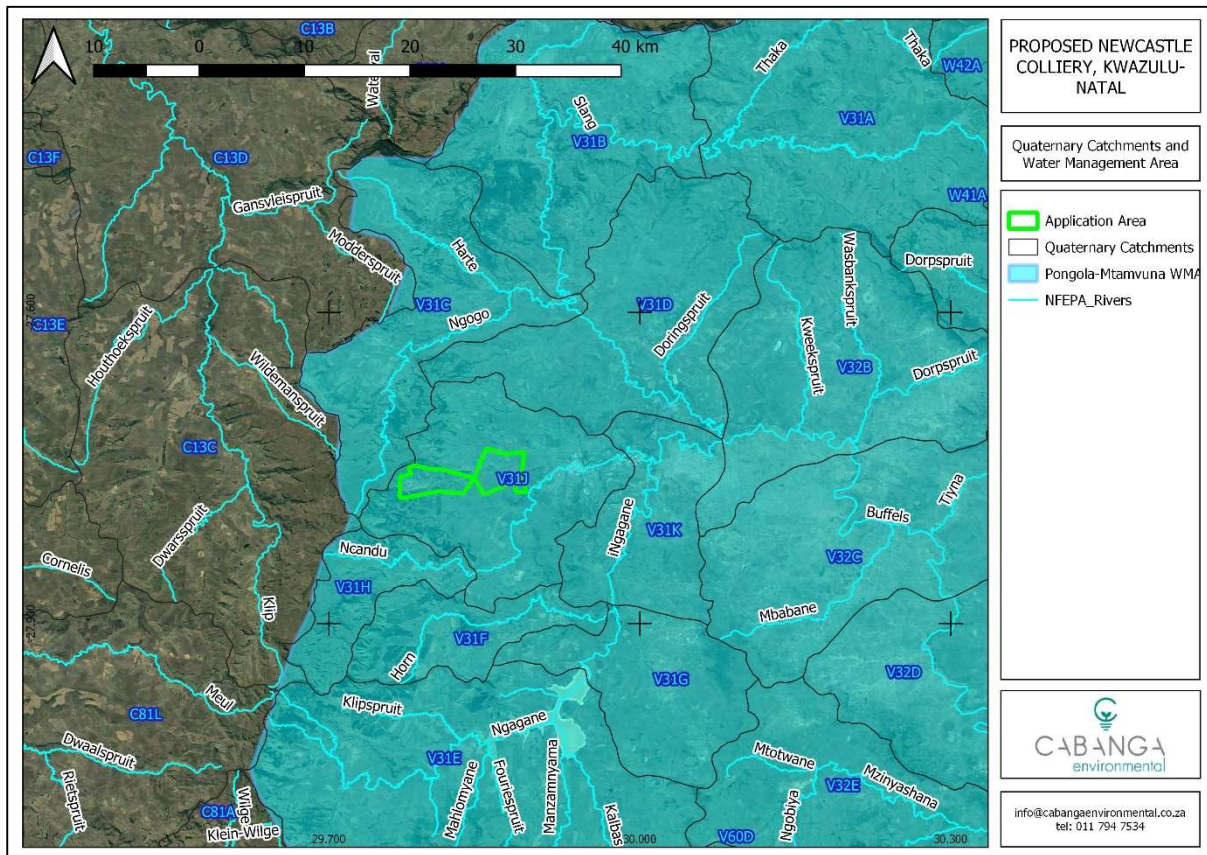
Plan 10: Agricultural Sensitivity

7.4 Hydrology (Surface water)

The Project site is in quaternary catchment V31J, in the Buffalo sub-catchment of the Pongola-Mtamvuna Water Management Area (WMA4) (Plan 11).

The closest major river associated with the site is the Ncandu River, that originates in the mountains west of the project area, flows south of the Project area to its confluence with the iNgagane River east of the site, after flowing roughly west-to-east through the town of Newcastle. Smaller watercourses encountered on the site drain the area in an easterly direction, to join the Ncandu River just before it starts its route through Newcastle town.

Resource Directed Measures (RDM) is enabled through Chapter 3 of the National Water Act (Act No.36 of 1998) (NWA) which provides for the protection of water resources through their Classification, determination of Resource Quality Objectives (RQOs) and determination of the Reserve. Collectively these measures aim to ensure that a balance is reached between the need to protect and sustain water resources on one hand and the need to develop and use them on the other (DWS, February 2021).



Plan 11: Catchments and WMA

RQOs are important management objectives against which the outputs of resource monitoring will be assessed. RQOs were determined for the significant water resources in the Thukela River catchment, which is the largest river system within the Pongola to Mtamvuna Water Management Area (WMA 4) (DWS, February 2021).

The Project Site falls within the Buffalo River sub-catchment that comprises 9,803km². Integrated Units of Analysis (IUAs) were delineated for the catchment, the project falls within Resource Unit 2.4 (Ncandu to confluence with Ngagane) in IUA 2 (Ngagane River) (DWS, February 2021).

Proposed RQOs for the RU recommends the following (in summary) (DWS, February 2021):

- Ortho-phosphate (PO₄ -) as Phosphorus <0.05mg/ℓ;
- Total Inorganic Nitrogen (TIN-) as Nitrogen <1mg/ℓ;
- Total Dissolved Solids <350mg/ℓ;
- Sulphate <165mg/ℓ
- Chloride <120mg/ℓ
- pH Range 6.5 to 9.0

Further, natural flow patterns must be maintained in B Ecological Category. Alien invasive controls must be implemented, maintained and/ improved (DWS, February 2021).

7.5 Groundwater

Groundwater Resource Units (RUs) in the catchment area were prioritised based on RUs where aquifer sustainability is a concern due to over-abstraction or/ or insignificant replenishment, and RUs where groundwater quality is a concern due to either natural or induced impairments (DWS, February 2021).

Table 16: Description of the Ngagane River groundwater resource unit (DWS, February 2021)

IUA	Groundwater resource unit	Specific concern	Groundwater Quality characteristics	Groundwater Quantity characteristics	Strategic Aquifer Importance
IUA 2: Ngagane River	V31E, V31F, V31G and V31K.	Induced aquifer water quality issues (mining).	Water quality: - Classification = C/D (marginal to poor at hotspots (mines))	Area with moderate annual rainfall events and depths - 2-4% annual recharge - Stress Index: 44%	Moderate groundwater use: - Major wetland area in QC V31E - "Isolated" mining areas potential water quality deterioration.

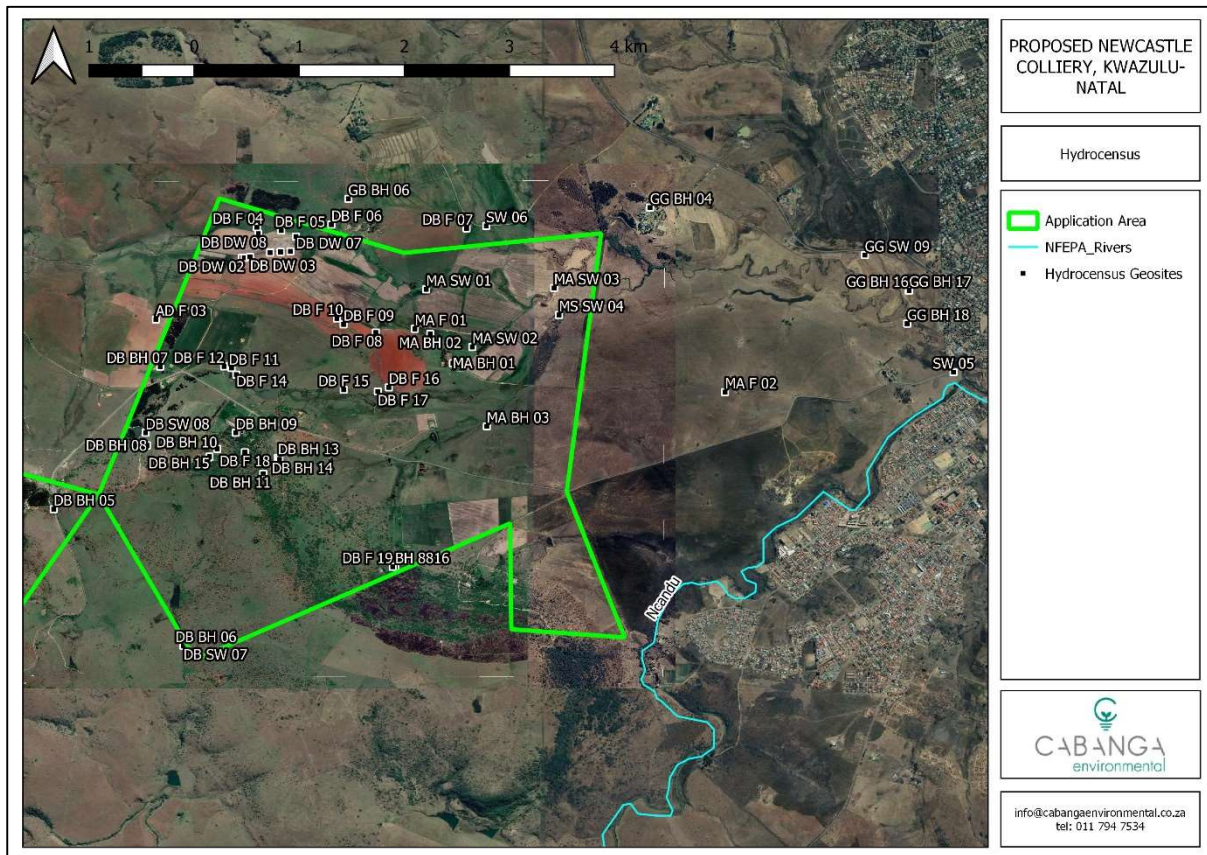
A hydro-census was carried out at the Project site in December 2022 by Gradient Groundwater Consulting. A total of 56 sites were recorded, illustrated in Plan 12, comprising boreholes, springs, rivers dams and dewatering infrastructure as summarised in Table 17.

Predominant water application was found to be for livestock watering, with some domestic use also indicated. A total of 13 samples were submitted for laboratory analysis (bold in Table 17) where water qualities generally met the SANS241:2015 Drinking water standards, with the exception of pH, Fluoride and Mercury at DBBH06, Iron at GGBH18 and Mercury at MABH01, MABH02, MABH03, GGBH04, DBBH05, DBBH07 and DBBH10.

Table 17: Summary results of the hydrocensus

Site ID	Latitude	Longitude	Geosite type	Site status	Water level (mbgl)	Water application
MA BH 01	-27.74716	29.87444	Borehole	In use	30.59	Domestic
MA BH 02	-27.74434	29.87226	Borehole	In use	NAWL	Livestock
MA BH 03	-27.75326	29.87772	Borehole	In use	6.67	Livestock
GG BH 04	-27.73214	29.89349	Borehole	In use	33.38	Domestic
DB BH 05	-27.76125	29.83590	Borehole	Not in use	5.40	Not in use
DB BH 06	-27.77442	29.84839	Borehole	In use	0.00	Livestock
GB BH 06	-27.73130	29.86435	Borehole	Not in use	11.58	Domestic Use
DB BH 07	-27.74749	29.84619	Borehole	In use	NAWL	Domestic Use
DB BH 08	-27.75509	29.84490	Borehole	Not in use	1.85	Not in use
DB BH 09	-27.75387	29.85348	Borehole	Not in use	11.26	Not in use
DB BH 10	-27.75543	29.85169	Borehole	In use	NAWL	Livestock
DB BH 11	-27.75783	29.85613	Borehole	In use	26.07	Livestock
DB BH 12	-27.75636	29.85759	Borehole	In use	16.80	Domestic use
DB BH 13	-27.75630	29.85755	Borehole	Not in use	10.29	Not in use
DB BH 14	-27.75644	29.85770	Borehole	In use	12.38	Domestic use

Site ID	Latitude	Longitude	Geosite type	Site status	Water level (mbgl)	Water application
DB BH 15	-27.75618	29.85095	Borehole	In use	34.19	Domestic Use
GG BH 16	-27.74015	29.91846	Borehole	Not in use	0.20	Not in use
GG BH 17	-27.74013	29.91850	Borehole	Not in use	0.33	Not in use
GG BH 18	-27.74335	29.91831	Borehole	Not in use	0.33	Not in use
BH 8816	-27.76681	29.86888	Borehole	Not in use	NAWL	Not in use
MA F 01	-27.74385	29.87078	Spring	In use	Artesian	Livestock
MA F 02	-27.74996	29.90072	Spring	In use	Artesian	Livestock
AD F 03	-27.74294	29.84577	Spring	In use	Artesian	Livestock
DB F 04	-27.73405	29.85552	Spring	In use	Artesian	Livestock
DB F 05	-27.73436	29.85787	Spring	In use	Artesian	Livestock
DB F 06	-27.73379	29.86271	Spring	In use	Artesian	Livestock
DB F 07	-27.73415	29.87576	Spring	In use	Artesian	Livestock
DB F 08	-27.74420	29.86700	Spring	In use	Artesian	Livestock
DB F 09	-27.74341	29.86389	Spring	In use	Artesian	Livestock
DB F 10	-27.74285	29.86324	Spring	In use	Artesian	Livestock
DB F 11	-27.74744	29.85281	Spring	In use	Artesian	Livestock
DB F 12	-27.74747	29.85236	Spring	In use	Artesian	Livestock
DB F 13	-27.74762	29.85308	Spring	In use	Artesian	Livestock
DB F 14	-27.74827	29.85353	Spring	In use	Artesian	Livestock
DB F 15	-27.74973	29.86390	Spring	In use	Artesian	Livestock
DB F 16	-27.74950	29.86826	Spring	In use	Artesian	Livestock
DB F 17	-27.74989	29.86720	Spring	In use	Artesian	Livestock
DB F 18	-27.75576	29.85436	Spring	In use	Artesian	Livestock
DB F 19	-27.76680	29.86864	Spring	In use	Artesian	Livestock
MA SW 01	-27.74003	29.87187	Dam	In use	n/a	Livestock
MA SW 02	-27.74560	29.87632	Dam	In use	n/a	Livestock
MA SW 03	-27.73990	29.88422	River	In use	n/a	Livestock
MA SW 04	-27.74250	29.88470	Dam	In use	n/a	Livestock
SW 05	-27.74803	29.92279	River	In use	n/a	Livestock
SW 06	-27.73392	29.87767	River	In use	n/a	Livestock
DB SW 07	-27.77442	29.84843	Dam	In use	n/a	Livestock
DB SW 08	-27.75388	29.84478	Dam	In use	n/a	Livestock
GG SW 09	-27.73673	29.91423	River	In use	n/a	Livestock
DB DW 01	-27.73698	29.85409	Dewatering infrastructure	In use	n/a	Livestock
DB DW 02	-27.73699	29.85431	Dewatering infrastructure	In use	n/a	Livestock
DB DW 03	-27.73690	29.85485	Dewatering infrastructure	In use	n/a	Livestock
DB DW 04	-27.73649	29.85679	Dewatering infrastructure	In use	n/a	Livestock
DB DW 05	-27.73643	29.85780	Dewatering infrastructure	In use	n/a	Livestock
DB DW 06	-27.73637	29.85876	Dewatering infrastructure	In use	n/a	Livestock
DB DW 07	-27.73494	29.85929	Dewatering infrastructure	In use	n/a	Livestock
DB DW 08	-27.73466	29.85566	Dewatering infrastructure	In use	n/a	Livestock



Plan 12: Hydrocensus Points

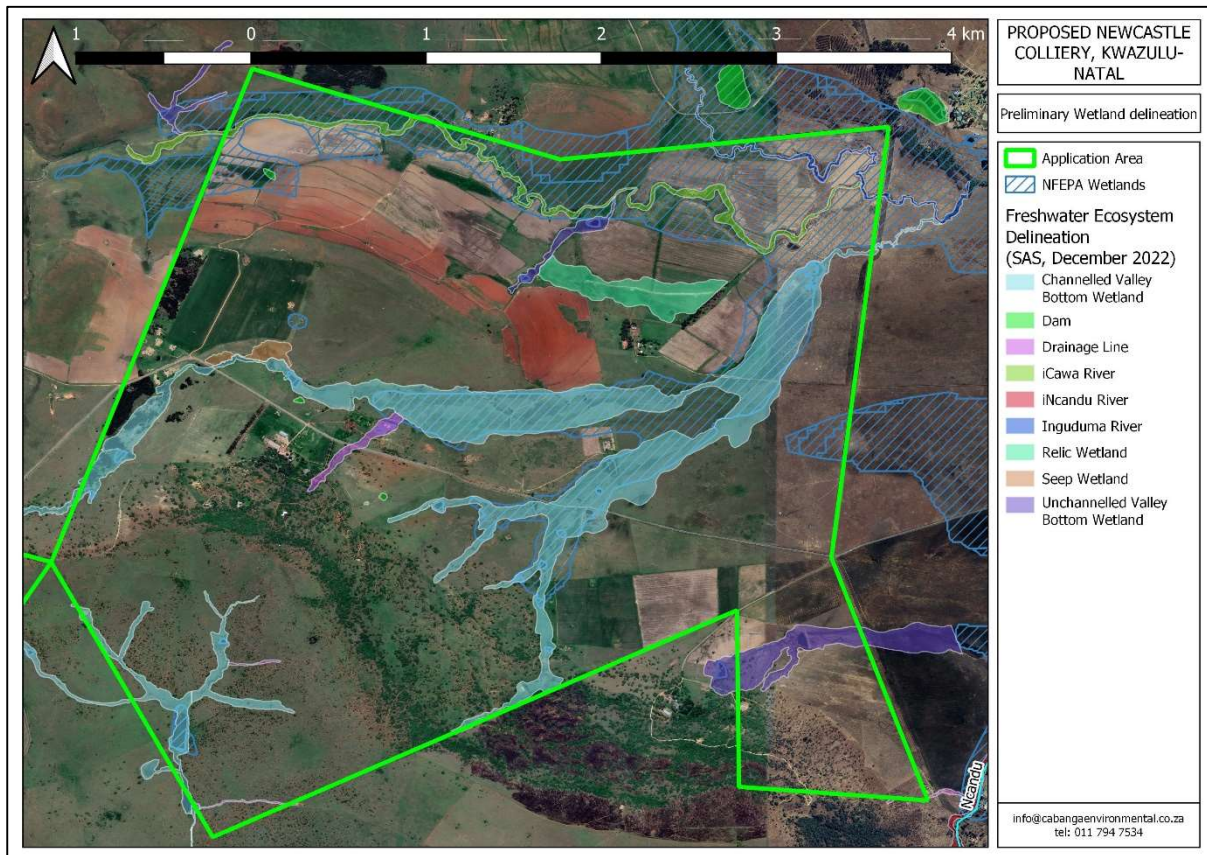
7.6 Wetlands

There is a natural, channelled valley bottom wetland identified in the National Freshwater Ecosystem Priority Areas (NFEPA) database that affects a large portion of the site (Nel, et al., 2011). Scientific Aquatic Services completed a freshwater ecosystem delineation for the site during December 2022, that identified the following freshwater ecosystems (Plan 13):

- Rivers (Inguduma River and iCawa River) and associated drainage lines; and
- Various wetland Hydro-geomorphic (HGM) Units (Seep wetlands, un-channelled and channelled valley bottom wetlands).

Historically functional wetlands have been transformed to relic wetlands (wet agricultural lands) by the historical and ongoing cultivation activities. The freshwater ecosystems were assessed to be largely unimpacted due to absence of significant modifiers within the catchment, within the exception of cultivation activities which date back to the 1930s according to historical imagery (SAS, December 2022).

At a high-level, the Present Ecological State (PES) ranges between Largely Natural (PES Category B) to Largely Natural/Moderately Modified (PES Category B/C). The Ecological Importance and Sensitivity (EIS) was considered to be high to very high due to the provision of hydro-functional services which are important given that these systems form headwater catchment for downgradient rivers, biodiversity maintenance, water supply to communities in the area including tourism and recreation (SAS, December 2022).



Plan 13: NFEPA Wetlands and delineated freshwater ecosystems

7.7 Biological Environment

The majority of the site is classified by Mucina & Rutherford (2006) as falling within the “Northern KwaZulu-Natal Moist Grassland” which has a conservation status of “Vulnerable”, and a conservation target of 24% with only about 2% statutorily conserved.

The vegetation type is distributed in the northern and north-western regions of the KwaZulu-Natal Province where it forms a discontinuous rim around the upper Thukela Basin and is situated almost entirely within the catchment of the Thukela River (Mucina & Rutherford, 2006).

The Succulent Herb *Aloe modesta* (vulnerable), and low Shrub *Bowkeria citrina* are both Low escarpment endemics and considered biogeographically important taxa in the region (Figure 5).

Scientific Terrestrial Services completed preliminary delineations of flora and fauna sensitivities of the site in December 2022, to inform the Project design.



Figure 5: *Aloe modesta* (left) (<http://redlist.sanbi.org/species.php?species=2206-174>) and *Bowkeria citrina* (right) (<https://pza.sanbi.org/bowkeria-citrina#>)

In terms of floral sensitivity the site may be classified as comprising high, intermediate and low risk to the project based on high, intermediate and low sensitivity areas delineated (Plan 14).

The classification is done as follows:

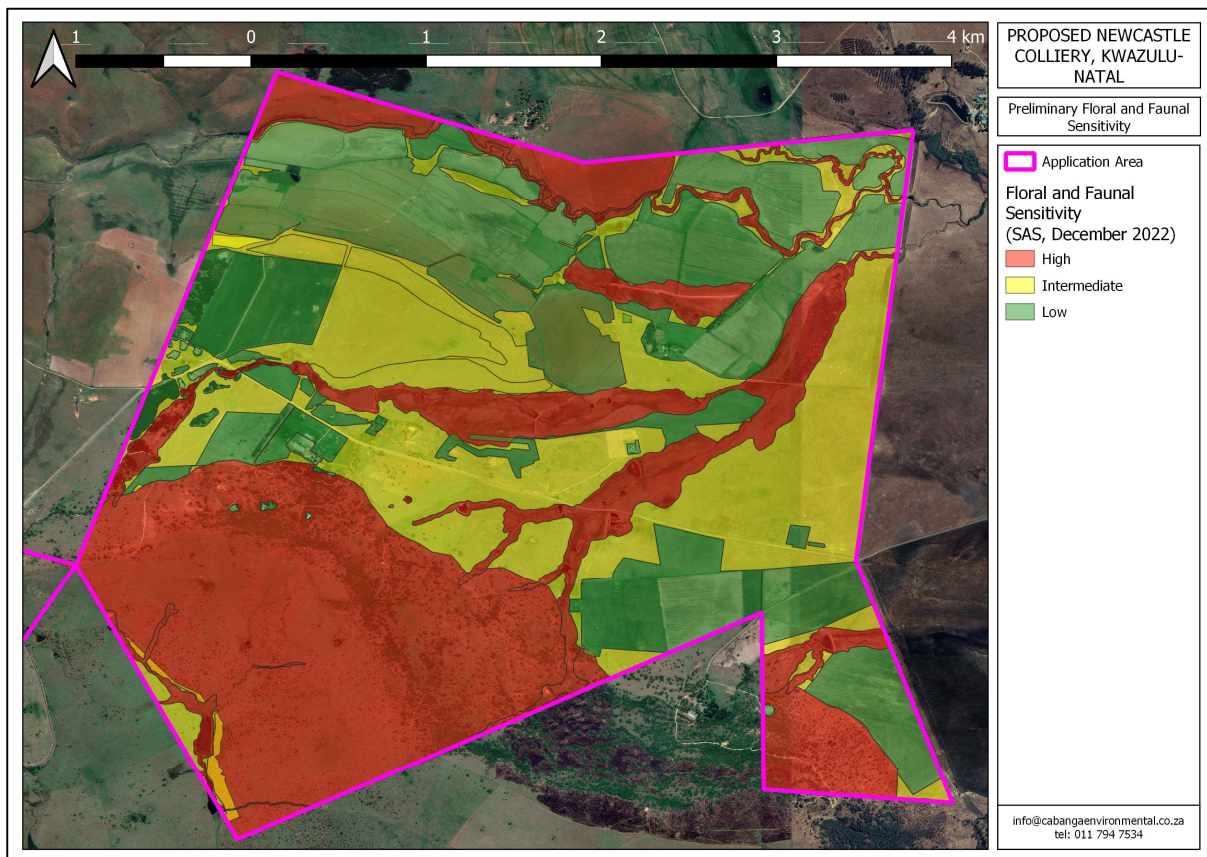
- High Risk (Ridge and rocky habitat and Freshwater ecosystems)
 - Presence of important biodiversity features, such as Critical Biodiversity Areas (CBA) and Ecological Support Areas (ESA);
 - Areas containing Freshwater ecosystems classified within the National Water Act, 1998 (Act No. 36 of 1998) (NWA);
 - Vulnerable (VU) ecosystems, namely Northern KwaZulu-Natal Moist Grasslands;
 - Favourable habitat conditions for Species of Conservation Concern (SCC), especially provincially protected species confirmed on site; and
 - Habitat in good ecological condition.
- Intermediate Risk (Grasslands)
 - Potential representative floral communities of VU ecosystems;
 - Habitat is in a fair ecological state despite signs of degradation and deviation from a healthy grasslands state; and
 - Areas provide habitat connectivity between areas of increased sensitivity.
- Low Risk (Transformed areas; Cultivation and built-up areas)
 - Transformed areas;
 - Floral communities significantly deviated from the reference state; and
 - Habitat not suitable for SCCs or important biodiversity features.

Similarly, fauna sensitivity is roughly associated with the habitat types and correspond to the floral sensitivity, the following delineation criteria was used:

- **High Risk Areas:** This area combines the Freshwater Ecosystems as well as the Rocky Habitat located throughout the study area. These areas are considered important in

terms of faunal habitat, species diversity, movement corridors and resource provision. The Freshwater and Rocky Habitats support several faunal SCC which were confirmed within the study area.

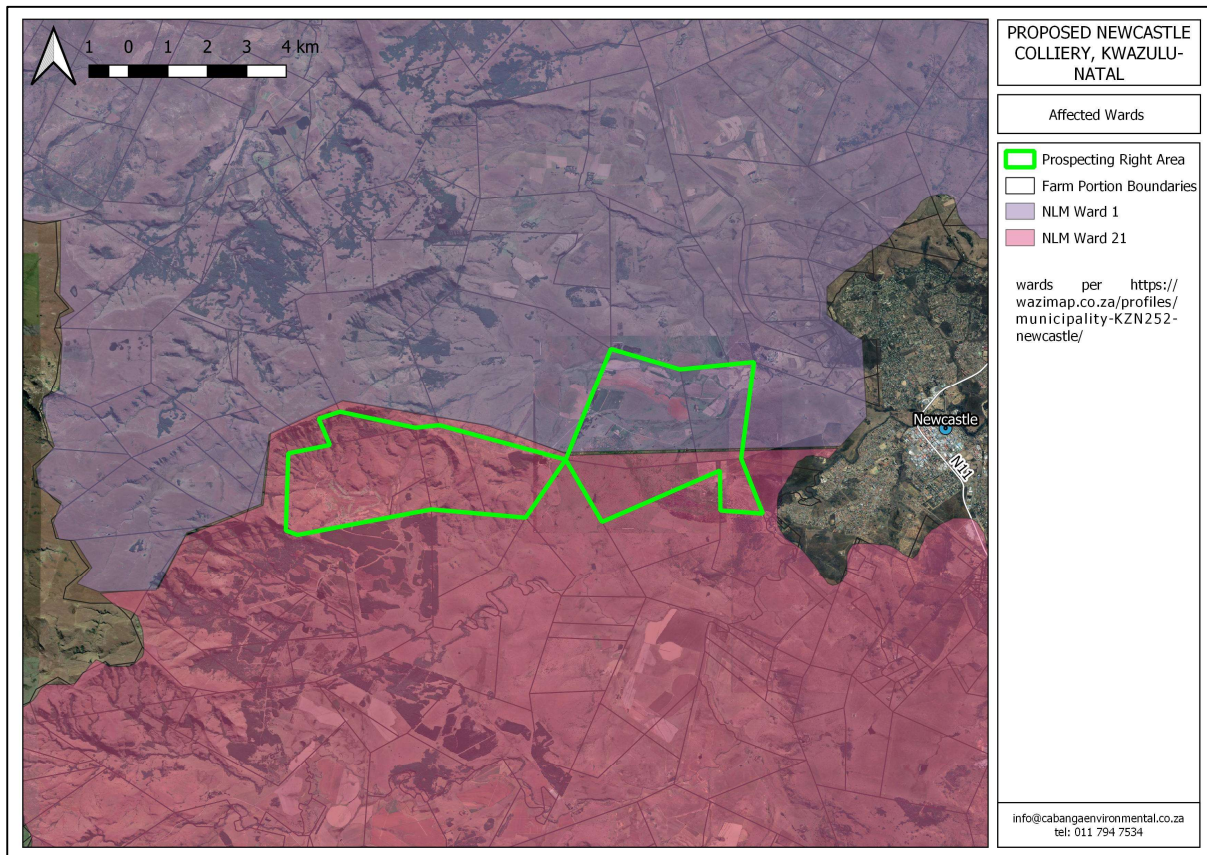
- **Intermediate Risk Areas:** This area constitutes the Grassland areas which are mostly used for grazing purposes for livestock. The remaining herbaceous layer present is within in an ecologically functional state and is still utilised by a diversity of faunal species including some SCC. These areas provide important habitat connectivity between areas of increased sensitivity.
- **Low Risk Areas:** These are the Transformed areas which mostly consist of cultivated fields, houses and built-up areas. Although resilient faunal species may still utilise these habitats for foraging and breeding purposes, the primary ecological function of these areas have mostly been lost and limit faunal diversity within.



Plan 14: Preliminary Floral and Faunal Sensitivity

7.8 Socio-Cultural Environment

The Project site falls within Ward 1 and Ward 21 of the Newcastle Local Municipality (Plan 15) but the proposed surface infrastructure largely affects Ward 1, with only the proposed Pit 2 and Pit 3 affecting Ward 21. The Ward 1 Community Based Plan of June 2021 (NLM, June 2021) was the predominant source of the information provided in this section of the scoping report.



Plan 15: Ward delineation

There are 5,281 Males and 5,488 Females making up the total population within Ward 1 of the NLM (total 10,769 persons), based on the 2011 Census data used in the compilation of the community-based plan. This accounts for 3% of the total population of the NLM. There are a total of 2,177 households in ward 1 with an average household size of 4 people per household. Ward 1's population is relatively young with 46% of the population being younger than 19 years of age, while the age group between 20-34 years old accounting for 24% of the population. The youth of the ward (0-34 years old) make up 70% of the total population, meaning that focus should be placed on providing more educational facilities, health services, sporting facilities and more job opportunities to help alleviate the social ills the area is faced with (NLM, May 2022).

Evaluation of the educational profile reveals that the majority of the population in the ward falls under the unskilled labour market, and that would prove to have adverse results on the dependency ratio and the unemployment rate within the ward, as well as the job quality and income of employed persons (NLM, June 2021).

Land uses within the ward comprises mostly residential and agricultural (farming) land uses.

The following entails a list of the priority issues that the community needs to be addressed within ward 1, in their order (NLM, June 2021):

1. Lowest concentration of households with access to electricity and solar power hence a need to make sure that electrical and solar energy be delivered to all households.

2. Poor access to water and sanitation therefore a need to provide households with water borne sewerage systems and portable water that can be easily accessed.
3. Land.
4. Poor quality of roads hence a need for their improvement thereof.
5. Poor quality of housing infrastructure hence a need for a housing project to improve housing in the area.
6. Poor access to public facilities hence a need for the development of a multipurpose sports ground.
7. Poor access to public facilities hence a need for the construction of a library and a Hall.
8. Job Opportunities
9. Waste Removal.
10. N11 Fencing.
11. (Taxi) Rank.

7.9 Heritage, Archaeology and Palaeontology

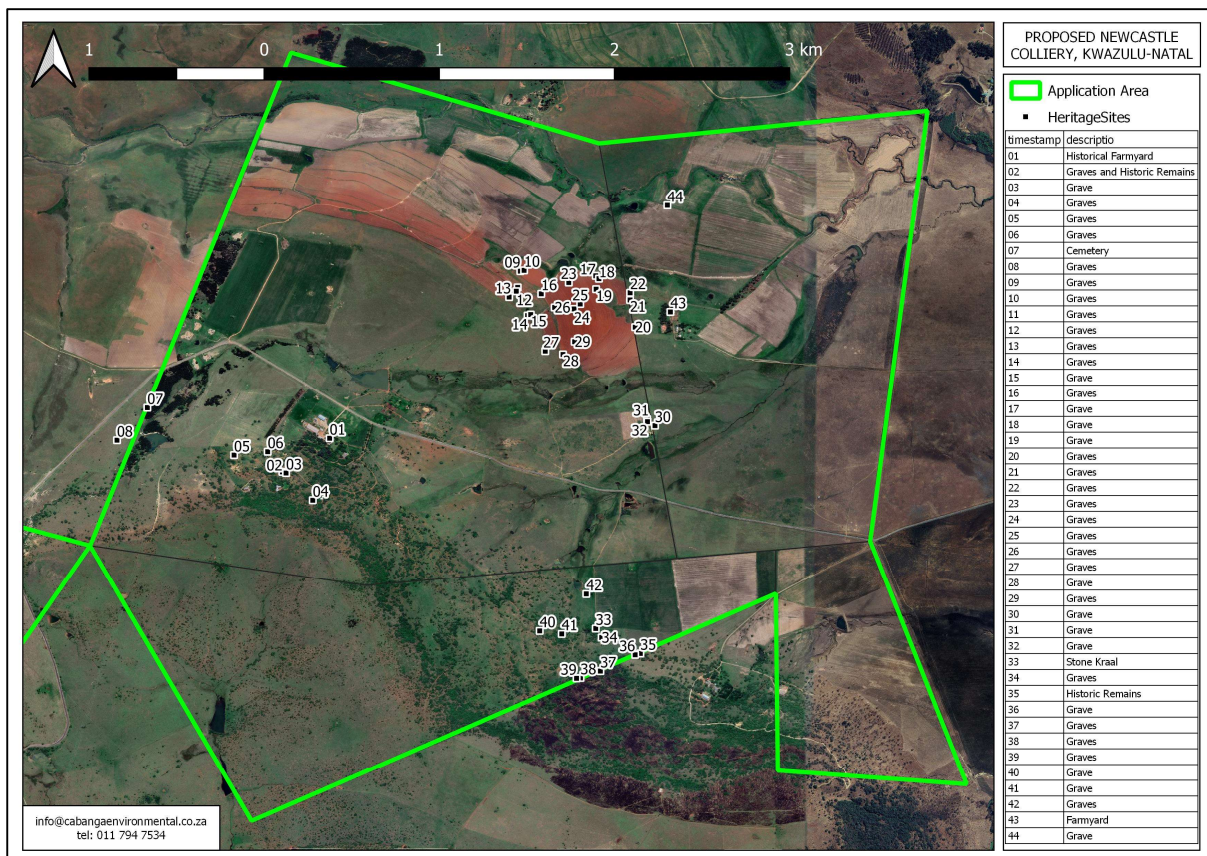
A palaeontological impact assessment was carried out at the project site, field work was undertaken in December 2022. The study confirmed that the proposed site lies on non-fossiliferous Jurassic dolerite and potentially very highly sensitive rocks of the Vryheid Formation (Ecca Group, Karoo Supergroup) which is the target for the coal mine. The site visit and walk through by palaeontologists confirmed that there are no fossil plants of the Glossopteris flora present on the surface, and only one outcrop of shale has preserved trace fossils of plant debris of no particular scientific interest (Bamford, 10 December 2022).

During the Archaeological survey (Archaeos, January 2023) forty-four cultural heritage sites were identified (Plan 16). These, and how they impact on the Project, or could be impacted upon by the Project, are summarised in Table 18.

Table 18: Summary of Heritage Sites

No	Description	Impact / recommendation
1	Historical Farm Yard	Outside of direct Project footprint (south of Vulintaba Road). Preserve <i>in-situ</i> (blasting specialist to advise, impacts to be prevented).
2	Graves and historic remains	
3 – 6 and 8	Grave	
7	Cemetery	
9-29	Graves	In, and adjacent to, current agricultural fields, outside of direct Project footprint. Preserve <i>in-situ</i> . Site preservation management plan to be compiled, with access arrangements for descendants. Blasting specialist to advise, impacts to be prevented.
30-32	Graves	These graves are inside the footprint area of proposed Pit D1 and will have to be relocated to enable the mining of Pit D1. Specific procedures should be followed which includes social consultation. An undertaker and

No	Description	Impact / recommendation
		archaeologist should be appointed. Permits must be obtained from the Burial Grounds and Graves unit of SAHRA.
33	Stone Kraal	Outside of direct Project footprint (south of Vulintaba Road). Preserve <i>in-situ</i> (blasting specialist to advise, impacts to be prevented)
35	Historic remains	
34 and 36-42	Graves	
43	Farmyard	The Project proposes to use the site as offices for year 1 – 8, whereafter it will be destroyed with the mining of Pit 6. The description in the phase 1 heritage report is seen as sufficient recording (low significance) and it may be granted destruction at the discretion of the relevant heritage authority without a formal permit application, subjected to the granting of Environmental Authorisation.
44	Grave	Adjacent to proposed overburden – preserve <i>in-situ</i> - Site preservation management plan to be compiled, with access arrangements for descendants. Blasting specialist to advise, impacts to be prevented.



Plan 16: Heritage Sites

7.10 Site sensitivity in relation to the proposed layout



Plan 17: Proposed layout in relation to environmental sensitivities

8 Impact Identification, assessment methodology and management strategy

The purpose of the impact assessment is to determine the significance of potential impacts, so that those activities that are expected to result in high impacts can be altered, or management measures imposed to lessen the impact significance.

A detailed impact assessment will be undertaken as part of the EIA phase. This section of the report serves to identify preliminary anticipated impacts and their anticipated significance.

8.1 Impact Assessment Methodology

Impact Significance is calculated by the following formula:

Impact Significance = Consequence x Likelihood

Likelihood refers to the probability that an impact will occur at some time throughout the project.

The Matrix which is proposed to determine Likelihood is as follows:

Table 19: Matrix used to determine likelihood

Likelihood	Unlikely: Impact Could occur in extreme events. Less than 15% chance of the impact ever occurring.	1
	Possible: possibility of impact occurring is very low. 16% - 30% chance of the impact occurring.	2
	Probable There is a distinct possibility of the impact occurring. 31% to 60% chance.	3
	Highly Probable: The impact is expected to occur. Between 61% and 85 % chance.	4
	Definite: There are sound scientific reasons to expect that the impact will occur	5

Consequence is calculated by considering the **duration**, spatial **scale** and **intensity** of an impact.

Duration relates to the time-frame that an aspect will be impacted upon. For example, any impact to a heritage resource is considered permanent, while the impact of increased traffic related to a construction activity will only last as long as the construction phase. Duration is rated according to the following criteria:

Table 20: Matrix used to rate duration

Duration	Short term: Less than 1 year and is reversible.	1
	Short to medium term: 2 - 3 years	2
	Medium term - 3 to 10 years	3
	Long term: 11-20 years	4
	Permanent: in excess of 20 years	5

Spatial **Scale** relates to the physical extent of the zone of influence of an impact. Where groundwater or air quality impacts, for example, can extend far beyond the footprint of the activity, it is not expected that the impact of vegetation removal should extend beyond the footprint of the activity of vegetation removal.

Scale is rated according to the following criteria:

Table 21: Matrix used to rate scale

Scale / Extent	Isolated: Limited footprint within the site will be affected (less than 50% of the site)	1
	Site Specific: The Entire Site will be affected	2
	Local: Will affect the site and surrounding areas	3
	Regional: Will affect the entire region / catchment / province	4
	National: Will affect the country, and possibly beyond the borders of the country	5

The **Intensity** of an impact is calculated by considering the **severity of the impact** (how it will change the aspect, will it be destroyed completely, or altered slightly?) and the **sensitivity of the aspect** (is the aspect sensitive to change, and is the aspect important to ecosystem processes or social dynamics?). For example, if the impact is anticipated to completely destroy a local plant population, but the plant population is commonly found and protected in nearby surroundings, the over-all intensity is lowered. If, however, the plant population in question is unique or protected, the intensity increases proportionately.

The Matrix which is proposed to determine Intensity is as follows:

Table 22: Matrix used to rate Intensity (Magnitude + Sensitivity)

Magnitude	Slight: Little effect, negligible disturbance / benefit	1
	Slight to Moderate: Effects are observable but natural process continue	2
	Moderate: ecosystem processes / social dynamics are permanently altered, but functioning.	3
	Moderate - High: natural / social processes are altered to the point where function is limited	4
	High: The aspect is affected so that its functioning is compromised and this effect is irreversible	5
Sensitivity	Not sensitive: The aspect is not sensitive to change (No irreplaceable loss of resource)	1
	Somewhat sensitive: The affected aspect is of not of significant value but is sensitive to change	2
	Sensitive: The affected aspect is of moderate value and is slightly resilient to change	3
	Very Sensitive: The affected aspect is of significant value and only slightly resilient to change	4
	Irreplaceable: The affected aspect is valued and sensitive to change. Irreplaceable loss of significant resource	5

Therefore, considering the formula:

$$\text{Significance} = \text{Consequence} \times \text{Likelihood}$$

Where **Consequence = Duration + Scale + Intensity**

And **Intensity = Severity of the Impact + Sensitivity of the Aspect**

The over-all significance rating can be calculated as a value between 4 and 100. The score is then categorised as follows:

- 4 to 19 = Insignificant Impact, no mitigation is required beyond standard best practice;

- From 20 to 39 = Low Impact, specific mitigation should be included in the EMP and monitoring should be undertaken;
- From 40 to 59 = Moderate Impact, specific mitigation with strict monitoring is required;
- From 60 to 79 = High Impact, mitigation should consider alteration of the design or process to reduce the impact significance;
- >Higher than 80 (100 max) = The Impact is so Significant that the project design must be reconsidered to avoid the impact.

Impacts will be rated as per the abovementioned methodology without consideration of mitigation measures first, however there may be some mitigation already inherent in the design of the project (i.e. by locating the project infrastructure outside of known wetland and agriculture areas, or aligning powerline routes with existing powerline infrastructure traversing the site etc.).

Those impacts that are rated as having a moderate impact or above will be investigated further and management measures identified to attempt to reduce the consequence or likelihood of the impact. These impacts will then be rated again, while considering the mitigation measures that have been imposed.

8.2 Preliminary Impact Identification, Assessment and Mitigation

Each of the activities associated with the proposed Project may be associated with various impacts to environmental aspects. The anticipated activities (potential cause of impact) are discussed in the sub-sections that follow, based on the environmental aspect potentially impacted upon. A preliminary Impact Assessment summary is provided in Section 8.3.

8.2.1 Impacts on Geology, physiography and topography

Impact description:

The very nature of mining projects will inevitably result in altered geology due to extraction of overburden, coal, and the replacement of overburden into mined-out voids. Excavation and handling lead to alteration of the physical characteristics of the geological material, resulting in increased porosity and hydraulic conductivity. The excavations will also result in the liberation of *in-situ* groundwater make from the excavated rocks, which will contribute to the operational phase groundwater make.

Similarly, excavation of material from the ground, and stockpiling of overburden to enable mining, with the eventual backfilling of pits will result in alterations to the local topography. They physical presence of pits, dumps, plant, conveyors, haul roads, workshops, mining vehicles and machinery etc. will alter the present nature of the site.

Impact Assessment and potential to mitigate:

Impacts to geology are considered definite and permanent, with high severity, but limited to the affected footprints. The impact cannot be avoided, mitigated or reversed.

Impacts to topography are considered definite and will affect areas beyond the site footprint. The impacts are long-term, but reversible through rehabilitation of the mining areas. Severity of the impacts can also be addressed through management of topsoil height and vegetation of long-term stockpiles.

Further studies required?

Yes, a geotechnical assessment has been commissioned (Geomech Consulting) to advise on surface geotechnical conditions and foundation requirements for structures as well as highwall stability and related aspects. Further, a visual impact assessment (Scientific Aquatic Services) has been commissioned to further assess the visual impacts of changes to the topography and advise on management measures.

8.2.2 Impacts on soils, land use and land capability

Impact description:

Establishment of infrastructure and mining on the site will alter the land use from the current agriculture and grazing activities, to mining and associated activities.

From an agricultural perspective, the loss of high value farm land and / or food security production, as a result of the proposed activities, is a significant consideration as the soil resource and land capability are completely lost during the operational phase of the Project. If proper soil management procedures are implemented, pre-existing land uses may be reinstated although it is considered unlikely that the pre-mining land capability can be fully restored on all affected areas in the short-term.

Impact Assessment and potential to mitigate:

Without mitigation, topsoil loss is considered definite and long-term, though limited to the affected footprints. Specific measures (soil stripping and handling procedures) must be enforced to ensure preservation in topsoil so that this scarce resource can be used in rehabilitation.

Rehabilitation of the mining activity is a legal requirement in terms of the Financial Provision Regulations 2015 (as amended); however, experience has shown that some mines fail to rehabilitate adequately and the authorities do not always have the enforcement capacity required to ensure rehabilitation. Thus, despite the legal requirements, there is a possibility that the project could lead to permanent loss of land capability, if rehabilitation is not implemented. Commitment from the Applicant, along with careful planning of the mining and rehabilitation activities should negate this possibility.

Further studies required?

Yes, Zimpande Research Collaborative have been appointed to complete an agricultural assessment during the EIA phase.

8.2.3 Surface water impacts

Impact description:

Retention of mine-affected water on the Project site will result in reduced volumes of stormwater reporting to the downstream environment. Water collected in the Pollution Control Dam (PCD) or mine pit will evaporate at a higher rate than in-stream water. The project is expected to have an impact on the catchment yield.

Surface water quality deterioration is a significant risk associated with mining projects. Pollution of surface water resources can occur from erosion, causing sedimentation of downstream water resources, and/or chemical contamination from the use of explosives and hydrocarbons

on site. The containment of mine-affected water on site in pollution control dams also presents a risk that these facilities may overflow / spill into the surrounding clean water environment.

Impact Assessment and potential to mitigate:

Impacts to catchment yield are inevitable as retention of mine-affected water on site is a legal requirement. Impact severity can be reduced by minimising affected footprints (thus minimising the amount of dirty water stored on site).

Contamination impacts can be prevented by proper management of chemicals including hydrocarbons on site, prevention of spills, immediate and effective clean-up of accidental spills. Sedimentation can be prevented by the prevention of erosion.

Further studies required?

Yes, Letsolo Water and Environmental Services cc has been appointed to complete a hydrological impact assessment in the EIA phase. This will include the development of a conceptual stormwater management plan and water balance (to be refined by the applicant's Engineering Team).

8.2.4 Groundwater impacts

Impact description:

During the operational phase, dewatering of mine-workings will likely cause a cone of depression and may impact on the water levels in surrounding boreholes (and surface water resources). Simultaneously, this drawdown is expected to prevent contaminant migration away from mine areas during the operational phase.

Once operations cease and the pits are backfilled, dewatering will cease and the groundwater levels are expected to recover over time. This will however enable coal-mining related contaminants to migrate away from the mining areas.

Groundwater modelling must be undertaken to determine the likelihood of acidic conditions in the groundwater environment, and the potential for decant from the workings. At this early stage of the project, it is assumed that acidic decant will occur in the post-mining environment.

Impact Assessment and potential to mitigate:

The possibility of acidic conditions forming, and the potential for decant, cannot readily be prevented. The only possible mitigation (other than the no-project alternative) is to develop infrastructure to capture decant water and treat it before it can report to the downstream environment. It is anticipated that passive treatment systems will be able to improve water quality of the decant sufficiently.

If the Mine affects water availability, the Mine will have to provide an alternative water supply to affected land owners (through it is acknowledged that this would not address the ecological impacts).

Further studies required?

Yes, Gradient groundwater consulting has been appointed to complete a hydro-geological impact assessment in the EIA phase.

8.2.5 Impacts to wetlands and aquatic ecology

Impact description:

Various wetlands have been delineated on the Project site and the project design has been altered to avoid direct destruction of these wetlands for the most part. The presence of the coal has necessitated that some of these wetlands are encroached upon by the proposed pits based on the current project layout. Further practical project considerations necessitate the crossing of these systems by project-related linear infrastructure such as roads and conveyors.

Avoidance of wetlands on surface is not sufficient to ensure protection of wetlands and the ecosystems that depend on them: excavations in proximity to watercourses and wetlands will cause water from these systems, and on which these systems depend, to report to the lowest-lying elevation (i.e. in-pit). Rehabilitation of the pits will be crucial to ensure these systems are reinstated timeously.

In addition to water quantity (availability), water quality deterioration would also negatively impact on wetlands and aquatic ecology. As for surface water, water quality deterioration must be prevented throughout the Life of Mine.

Impact Assessment and potential to mitigate:

Wetland systems on the site feed into the iCawa River System, that reports to the Inguduma River which flows eventually into the Ncandu River. The Ncandu River flows through the town of Newcastle and is expected to be impacted in this section by various anthropogenic activities. The importance of the aquatic ecological ecosystems on site will be verified by specialist assessment in the EIA phase, at this stage of the project these systems are assumed to be very sensitive. Impacts to these resources are considered highly probable, given the current layout, and expected to be of high severity in the long term, potentially affecting regional systems. Impact severity, duration and scale can be reduced by preventing contamination of wetland systems and ensuring concurrent rehabilitation of the mine.

Further studies required?

Yes, Scientific Aquatic Services have been appointed to complete a freshwater and aquatic ecological assessment in the EIA phase.

8.2.6 Impacts to terrestrial flora and fauna

Impact description:

Large portions of the project site have been disturbed by agricultural and residential land uses, impacting on the natural terrestrial ecology of the site. However, areas of natural vegetation remain intact, especially in the more mountainous areas in the south of the site, and in areas associated with wetlands. Mining and associated infrastructure establishment will destroy natural vegetation that remains on site in the project footprints. The associated habitat fragmentation, degradation and in some cases destruction, is inevitable. Project design has excluded the mountainous areas and CBAs in the south of the site as far as possible, with the exception of Pit 3. The remaining areas of the mountains in the south of the site present some opportunity for biodiversity offset as no Project infrastructure is planned, and this area also falls in a NPAES zone.

Impact Assessment and potential to mitigate:

Development of the project will definitely result in destruction of flora. The vegetation in the remaining natural areas of the site is regarded as sensitive. Further, the project will result in habitat fragmentation and degradation. Fauna that migrate to adjacent natural areas will increase the competition for natural resources (food, shelter) within those areas.

Mitigation can reduce impact significance to a degree by keeping the affected footprint areas as small as possible and increasing conservation efforts in un-affected areas of the site. Impact duration can also be limited by ensuring rehabilitation is implemented timeously.

Further studies required?

Yes, Scientific Terrestrial Services have been appointed to complete a terrestrial biodiversity assessment in the EIA Phase.

8.2.7 Impacts on noise and air quality

Impact description:

The existing noise profile of the site is considered quiet with noise sources limited to natural sounds (rivers, birds, wind through trees) and activities associated with farming (livestock noise, farm machinery, limited vehicle movement). This is expected to change completely with the onset of mining activities and associated noise sources associated with increased traffic, mine vehicle and equipment movement, blasting and the crushing and screening plant.

Data on existing air quality at the site is not available, but considering the current site activities it is expected that air quality will be good with minor increased dust associated with seasonal ploughing, planting and harvesting. The Project is expected to increase dust and fugitive emissions on the site from vegetation clearance, blasting, vehicle and machinery movement and operation, crushing and screening activities as well as stockpiles.

Impact Assessment and potential to mitigate:

Increased noise and dust resulting from project activities are considered highly likely and expected to be of moderate to high severity in the long term with the potential to impact on a local scale. Mitigation should focus on limiting the extent and severity of impacts by implementing dust suppression techniques and ensuring all vehicles, machinery and equipment are in good working condition to reduce the noise and emissions associated with vehicles, machinery and equipment in disrepair. Strict speed limits on gravel roads must be implemented to reduce vehicle-entrained dust.

Further studies required?

Yes, Rayten Engineering Solutions (Pty) Ltd has been appointed to complete a Noise Impact Assessment and an Air Quality Impact Assessment for the project in the EIA phase.

8.2.8 Impacts on heritage resources

Impact description:

A total of 44 heritage sites were confirmed within the application area by the archaeologist. The Project design has been adjusted to avoid direct impact to the majority of these resources.

The mining of Pit D1 will result in the destruction of sites 30, 31 and 32 (graves) and therefore a formal grave relocation process has to be concluded before mining of Pit D1 can commence.

The only other site that is directly affected by the proposed project footprint is site 43, a farmyard with elements that are older than 60 years. The mine proposes to use this area to house their offices and associated support facilities for year 1 – 8 of the Project. This site will thereafter be destroyed by the Mining of Pit 6. The description in the phase 1 heritage report is seen as sufficient recording (because the site is of low significance) and it may be granted destruction at the discretion of the relevant heritage authority without a formal permit application, subjected to the granting of Environmental Authorisation.

Other sites may be indirectly affected by the impacts of blasting, or inadvertently affected if not properly protected. It is recommended that these sites be preserved *in-situ*. These sites are grouped into two categories for management purposes: those falling completely outside of the project footprint, south of the Vulintaba Road, and those located in-between the mining and associated activities.

Impact Assessment and potential to mitigate:

The grave relocation process will ensure preservation of the mortal remains at sites 30, 31 and 32 albeit in another location.

Subject to confirmation from the blasting specialist, the heritage sites south of the Vulintaba Road will not be affected by the project. These sites fall outside of the active mining areas and associated infrastructure areas. The proposed mine activities will not restrict access to these sites but these sites may be included in the blast monitoring programme to ensure they are not impacted by blasting activities.

Those heritage sites that fall within the activity areas must have a management plan drafted by a heritage specialist, in consultation with the blasting specialist, for their sustainable preservation, including arrangements for access to descendants.

A chance-find protocol for archaeological and palaeontological resources not yet discovered must also be implemented for the Life of Mine.

Further studies required?

Yes, Archaeos Culture & Cultural Research Consultants were appointed to complete a phase 1 Heritage Impact Assessment on the Project Site. The report will be finalised as part of the EIA phase.

Blast Management & Consulting have been appointed to complete a Blast and Vibration impact assessment.

8.2.9 Impacts on the socio-cultural and socio-economic environment

Impact description:

A total of 168 personnel will service the Project during the operational phase, these are considered sustainable, long-term job opportunities directly associated with the Project. Other residual job opportunities are expected to arise as a result of the project and these must be identified by specialists in the EIA-phase.

It is also anticipated that the project may have negative impacts on existing economic activities on the site and in the surroundings: Current farm workers may no longer be able to continue their employment on the affected farms; Some of the residents of the affected farms will have to be re-located for safety purposes as the residences are within potential blasting impact zones; and tourism businesses that have a view of the Project may lose revenue and popularity due to visual impacts of the Project.

Mining projects are often associated with social ills due to influx of job-seekers from outside of the area. The Newcastle Project will give preference to local persons when recruiting and when sourcing materials and services for the mine, where the required skills are available locally.

The sense of place will be altered by the presence of the Project for the duration of the project.

Impact Assessment and potential to mitigate:

Positive socio-economic impacts associated with job creation at the mine can be enhanced by ensuring employment of local persons. Further positive impacts are expected to be realised through the implementation of the Project's SLP. The positive impacts are considered long-term (for the duration of the project 15 years at least), of local scale and highly probable. Given the unemployment crisis in South Africa and the fairly low number of direct job opportunities, impact severity is considered slight.

Negative socio-economic impacts must be quantified by specialists in the EIA phase. Local procurement must take priority wherever the skills are available locally, directly affected communities must be given preference for jobs and the provision of related support services / goods. Communication and management of job-seeker expectations will be essential to prevent in-migration of job-seekers

Further studies required?

Yes, Scientific Aquatic Services have been appointed to complete a Visual Impact Assessment as part of the EIA. Urban-Econ Development economists have been appointed to complete a socio-economic impact assessment as part of the EIA.

8.2.10 Impacts on the road network and traffic

Impact description:

The project will result in increased traffic on the local road network, especially considering the trucking of coal off-site. increased heavy-vehicle traffic will lead to further deterioration of roads that are already in poor condition. This coupled with increased traffic volumes could lead to traffic accidents.

Impact Assessment and potential to mitigate:

Ensure all drivers associated with the Mine are properly trained and licensed. Liaise with the roads authority to enable the Mine to contribute to maintenance of the Vulintaba Road (and others, where required).

Further studies required?

Yes, JG Afrika was appointed to complete a traffic impact assessment as part of the EIA Phase.

8.3 Preliminary Impact Summary

Table 23: Impact Assessment and Mitigation

Impact description	Nature of Impact	Probability		Sensitivity of the Aspect		Severity of the Impact		Duration		Scale / Extent		Significance (without Mitigation)		Mitigation (can the impact be reversed, avoided, managed or mitigated?)	Significance (with Mitigation)	
Physical alteration of pre-existing geology by excavation and mining.	Negative	5	Definite	1	Not sensitive	5	High	5	Permanent	2	Site	65	High	The impact cannot be avoided, mitigated or reversed.	65	High
Physical alteration of pre-existing topography by excavations, stockpiles and infrastructure.	Negative	5	Definite	3	Sensitive	4	Moderate to High	4	Long Term	3	Local	70	High	Reduce impact severity by placement and maintenance of stockpiles. Prevent erosion, vegetate stockpiles, Reduce duration by rehabilitation.	55	Moderate
Loss of topsoil due to stripping and improper soil handling procedures.	Negative	5	Definite	4	Very sensitive	4	Moderate to High	4	Long Term	1	Isolated	65	High	The probability of the impact occurring can be reduced significantly by the strict implementation of proper soil handling procedures. Strip and stockpile topsoil separately from subsoil material. Protect stockpiles from erosion, compaction, contamination. Stockpile topsoil for the shortest possible time before use in rehabilitation. After re-instatement of topsoil, ensure rehabilitated areas are protected from erosion (install contour berms and vegetate areas immediately following topsoil replacement).	26	Low
Loss of land capability due to failure to rehabilitate after mining	Negative	3	Probable	4	Very sensitive	4	Moderate to High	5	Permanent	2	Site	45	Moderate	Ensure mining and rehabilitation planning is done properly, and implemented per approved rehabilitation plans.	15	Insignificant
Impacts on catchment yield due to retention of dirty water on site	Negative	5	Definite	2	Somewhat sensitive	1	Slight	4	Long Term	3	Local	50	Moderate	Minimise the area that can be considered "dirty", to reduce the volume of mine-affected water that must be retained on site. Ensure effective clean- and dirty water separation throughout all phases.	35	Low
Surface water quality deterioration due to erosion causing sedimentation, or due to chemical contamination from the Mine.	Negative	4	Highly Probable	3	Sensitive	3	Moderate	4	Long Term	3	Local	52	Moderate	Prevent erosion on site (contour berms, vegetating bare areas). Prevent chemical spills: provide fit for purpose storage and handling facilities for chemicals and hydrocarbons. Restrict use of chemicals to trained persons. Ensure spill response for accidental spills.	22	Low
Reduced Groundwater levels in the operational phase due to dewatering.	Negative	4	Highly Probable	4	Very sensitive	3	Moderate	4	Long Term	3	Local	56	Moderate	If the Mine affects water availability, the Mine will have to provide an alternative water supply to affected land owners	36	Low
Groundwater contamination due to AMD and decant.	Negative	4	Highly Probable	4	Very sensitive	5	High	5	Permanent	4	Regional	72	High	Detailed groundwater modelling to be undertaken in the EIA-phase. If decant is expected, a decant management plan must be developed before project commencement, and implemented before decant is expected to start, to ensure decant water is captured and treated (passive treatment should suffice) prior to discharge to downstream environments.	56	Moderate
Impacts to wetlands and aquatic ecology due to	Negative	4	Highly Probable	4	Very sensitive	5	High	4	Long Term	4	Regional	68	High	Prevent erosion on site (contour berms, vegetating bare areas). Prevent chemical spills: provide fit for purpose storage and	48	Moderate

Impact description	Nature of Impact	Probability		Sensitivity of the Aspect		Severity of the Impact		Duration		Scale / Extent		Significance (without Mitigation)	Mitigation (can the impact be reversed, avoided, managed or mitigated?)	Significance (with Mitigation)		
reduced water availability or contamination.													handling facilities for chemicals and hydrocarbons. Restrict use of chemicals to trained persons. Ensure spill response for accidental spills. Prevent inadvertent impact to wetlands outside of the Project footprint by demarcating these and their buffer zones as no-go areas.			
Destruction of terrestrial flora and fauna due to development of the project and associated infrastructure.	Negative	5	Definite	3	Sensitive	5	High	4	Long Term	2	Site	70	High	Keep the affected footprint as small as possible. Consider increased conservation efforts in un-affected areas of the site in consultation with conservation authorities. Ensure rehabilitation is implemented timeously.	55	Moderate
Increased noise and dust from Project activities.	Negative	4	Highly Probable	3	Sensitive	4	Moderate to High	4	Long Term	3	Local	56	Moderate	Implement strict speed limits. Implement vehicle, machinery and equipment maintenance per manufacturer specification. Implement dust suppression.	44	Moderate
Destruction of or damage to Heritage Resources	Negative	4	Highly Probable	5	Irreplaceable	5	High	5	Permanent	1	Isolated	64	High	Complete the grave relocation according to accepted procedures, prior to mining of Pit D1. Implement the recommendations of the Blast specialist to ensure inadvertent damage due to blasting is avoided. Appoint a heritage specialist to compile, and implement the management plan for each heritage resource in the project area. Implement a chance-find procedure	32	Low
Positive socio-economic impacts - direct and indirect job creation	positive	4	Highly Probable	3	Sensitive	1	Slight	4	Long Term	3	Local	44	Moderate	Enhance positive impacts by local recruitment, upskilling, skills transfer and implementation of the SLP.	44	Moderate
Negative socio-economic impacts, loss of existing agricultural jobs, relocation of persons, increase in social ills due to influx of migrant job seekers.	Negative	4	Highly Probable	3	Sensitive	2	Slight to Moderate	4	Long Term	4	Regional	52	Moderate	Clear communication to manage expectations of job-seekers and prevent influx of migrant labour. Recruit locally.	48	Moderate
Increased traffic resulting from the project, causing road deterioration and potential road safety issues.	Negative	4	Highly Probable	4	Very sensitive	5	High	4	Long Term	3	Local	64	High	Ensure driver awareness training is provided, ensure safe line-of-sight and vehicle turning onto roads. Liaise with roads authorities for road maintenance plans.	32	Low

9 Plan of Study for Environmental Impact Assessment

The purpose of this section of the Scoping Report is to map a way forward to ensure that the EIA study will be undertaken in a manner that will include all relevant aspects of the proposed project in the context of the project site. This plan of study is set out as per the required contents of the plan of study as contained in the EIA Regulations, 2014 (as amended), as follows:

Required contents of the Plan of Study	How this Plan of Study addresses the requirements
(i) a description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity	The alternatives identified in this Scoping Report will be included in the EIA investigations to further refine the feasible project options. Additional alternatives identified through the PPP will also be included where feasible and where these are not further investigated, reasons will be provided.
(ii) a description of the aspects to be assessed as part of the environmental impact assessment process	The aspects that will be assessed as part of the EIA Process will be the same aspects as identified in Section 7.10 of this Scoping Report. If additional aspects are identified through the PPP and/or specialist assessments, these will be added to the assessment as necessary. These aspects will, in most instances, be assessed by specialists. The terms of reference for the specialist studies commissioned as part of the EIA Process are provided in Section 9.2.
(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	The impact assessment methodology proposed in Section 8.1 will be used in the EIA phase to assess the significance of the identified impacts, though it is anticipated that a number of specialists will adopt alternative assessment methodologies specific to the relevant specialist field. Specialist studies will be attached to the EIA Report as appendices and the findings of the specialist impact assessments will be summarised in the EIA Report, according to the Impact Assessment Methodology described herein.
(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	The future planned PPP, including authority consultation, is described in Section 6.1 of this report.
(vii) particulars of the public participation process that will be conducted during the environmental impact assessment process	
(viii) a description of the tasks that will be undertaken as part of the environmental impact assessment process	Please see Section 9.1
(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.	Preliminary mitigation measures are stipulated in Section 8.2 of this report. During the EIA-phase, these will be expanded on, as the mitigation measures are related to the significance of the identified impacts. This will be informed by specialist studies, the PPP and the EAP.

9.1 Specific tasks that will be undertaken as part of the EIA process

As the project description is further refined and the design developed, the activities associated with each of the project components which could be associated with impacts (either positive or negative) on the receiving environment (physical, biological and socio-cultural) will be expanded.

Each activity associated with the proposed Project throughout its development phases will be included in the assessment. In summary, the tasks that will be undertaken as part of the EIA process include:

1. Refine the project description to such an extent that the detail is sufficient to identify each project-related activity that could impact on the surrounding environment;
2. Describe the likely nature of the impacts (what aspect(s) of the environment are the activities likely to impact upon, is the impact positive or negative, is the impact avoidable or reversible, will the impact result in irreplaceable loss of resources etc.)
3. Define the significance of each impact, in the absence of management and mitigation measures, according to the Impact Assessment Methodology (Section 8.1).
4. Rank the impacts in order of significance and identify avoidance, management and/or mitigation measures for each that are appropriate to the impact significance.
5. Re-assess the impact significance taking the proposed management measures into account. Compile the management measures into a comprehensive EMP that must be implemented during the different project phases and against which compliance can be audited.
6. In addition to the management measures, formulate a monitoring and auditing plan for the proposed project to ensure the EMP is regularly updated and will remain valid and relevant throughout the project life-cycle, and that potential non-compliances can be addressed immediately.
7. Based on the impact significance, after mitigation measures have been applied, formulate a professional opinion on the benefits and risks of the project to assist the decision-making authorities in assessing the merit of the project and reaching a decision on the project.
8. All the preceding steps go hand-in-hand with public and authority consultation as well as specialist input.

9.2 Specialist studies to be undertaken in the EIA Phase, and the specialists' terms of reference

Several specialist assessments have been commissioned as part of the EIA process. The terms of reference for each study are provided in the sections below. These may be updated/refined based on feedback received from the authorities and/or during the PPP.

9.2.1 Surface Geotechnical Assessment

Geomech Consulting (Pty) Ltd has been appointed to provide input into the highwall design and mining layouts which will be incorporated into the mine planning process on the site. The

role of the geotechnical input into the project, execution and rehabilitation phases on the mine will be to:

- Provide input into the highwall design to ensure that the risks associated with potential highwall instability beyond the planned mining limit are adequately mitigated to prevent damage to surface structures / features which are to be protected.
- Provide input into the underground mine planning and design to ensure the stability of the underground workings and that the design is adequate to ensure that protection of the relevant surface structures and features as and when required.
- Conduct the relevant rock fall and slope instability related risk assessments and compile the subsequent mandatory codes of practice to ensure that the risks associated with the proposed mining methods are well defined and that the required design and stability management strategies are effectively implemented during the mine planning, execution, and rehabilitation phases.

9.2.2 Groundwater (hydrogeology)

Gradient Groundwater Consulting has been appointed to undertake a hydrogeological investigation and groundwater impact assessment for the Project. The planned scope of work (SoW) will be based on a phased approach as set out below:

- Phase I: Site Characterisation
 - Phase A: Desk study and gap analysis
 - Information gathering and data acquisition.
 - Desk study and review of historical groundwater baseline information, existing specialist reports as well as DWS supported groundwater databases i.e. national groundwater archive (NGA).
 - Fatal flaw and gap analysis.
 - Phase B: Hydrogeological baseline assessment
 - Hydrocensus user survey to evaluate and verify existing surface and groundwater uses, local and neighbouring borehole locations and depths, spring localities and seepage zones, regional water levels, abstraction volumes, groundwater application as well as environmental receptors in the vicinity of the proposed project.
 - Sampling of existing boreholes and surface water bodies according to best practise guidelines and analyses of water samples to determine the macro and micro inorganic chemistry and hydraulic connections based on hydrochemistry (analyses at SANAS accredited laboratory).
 - Assess the structural geology and geometry of the aquifer systems with respect to hydraulic interactions and compartmentalisation.
 - Data interpretation aiding in aquifer classification, delineation, and vulnerability ratings. Development of a scientifically defensible hydrogeological baseline.
 - Compilation of geological, hydrogeological, and hydro-chemical thematic maps summarising the aquifer system(s), indicating aquifer delineation, groundwater piezometric map, depth to groundwater, groundwater flow directions as well as regional geology.
 - Phase C: Siting, drilling and testing of monitoring boreholes

- Geophysical survey: DC CVES technique (Wenner protocol) according to traverse array design for delineation of sub-surface lineaments and identification of potential preferential groundwater flow pathways. To include a combined traverse length of approximately 2.0 km.
 - Air-percussion drilling of 3x paired monitoring boreholes i.e. targeting shallow and deep aquifer units. All drilling will be carried out under supervision and according to SANS 10299-4:2003 standards: Development, maintenance and management of groundwater resources.
 - Short duration pump test i.e. 3x 4-hour constant discharge and recovery measurements on newly drilled boreholes to determine aquifer parameters as well as inter-connectivity. All pump-tests will be carried out under test supervision and according to SANS 10299-4:2003 standards. Interpretation of drawdown and recovery data for input into the numerical groundwater flow model.
- Phase II: Numerical groundwater flow model, impact risk assessment and reporting
 - Phase D: Geochemical characterisation, waste assessment and source term determination
 - Laboratory analysis and geochemical assessment of composite waste samples of strategically placed sampling localities (Static leach testing (TCLP), AMD generation, NAG Potential and sulphide speciation (5 samples)).
 - Processing of geochemical data.
 - Geochemical interpretation of laboratory results and source term determination.
 - Formulation of a geochemical conceptual model.
 - Waste assessment.
 - Phase E: Development of a numerical groundwater flow and mass transport model
 - Development of a conceptual hydrogeological model in conjunction with interpreted geology data and gathered site characterisation information.
 - Development of a regional numerical groundwater flow model by applying the Finite Element Flow (FEFLOW) modelling software. Model domain to include proposed infrastructure and opencast footprint as well as associated activities.
 - Calibration of groundwater flow model using site specific data including hydrocensus geo-sites information.
 - Development of a numerical mass transport model utilizing the calibrated groundwater flow model as basis. The calibrated model will be used to simulate various management scenarios.
 - Phase F: Hydrogeological impact assessment and reporting.

9.2.3 Surface water (hydrology)

Letsolo Water and Environmental Services cc has been appointed to complete a hydrological impact assessment, with the following terms of reference:

- Characterise the surface water regime in the in the immediate vicinity of the project (quality and flow). Characterise and delineate the prevailing surface water features in the area with specific reference to the proximity and sensitivity of streams;
- Assess the status of the existing environment: Rivers, catchment boundaries with information on the stream flow, mean runoff, normal dry weather flow, flood peaks and volumes, water quality baseline descriptions and compared with target water guidelines as per legislation. Identify the drainage density of areas to be disturbed.
- Characterise surface water quality regime in the area and in the immediate vicinity of the project and determine water quality of the prevailing surface water features in the area
- Determine areas of potential contamination within the site that could impact on the water resources and transport pathways and potential receptors and the potential impacts on such receptors.
- Provide recommendations on how the potential development could manage the identified impacts.
- Develop a monitoring protocol with details of what to be monitored, frequency and mapped monitoring points.

9.2.4 Air Quality

Rayten Engineering Solutions (Pty) Ltd has been appointed to complete an Air Quality Impact Assessment for the Project. The assessment will involve the following:

- Baseline Assessment;
- Emissions inventory;
- Dispersion Modelling; and
- Impact Assessment (including recommendations).

Dispersion modelling, using the AERMOD model, will be conducted in line with the South African National Regulations Regarding Air Dispersion Modelling, 2014.

Potential emissions from the proposed operation and associated activities will be modelled, to determine the predicted ambient air pollutant concentrations for applicable criteria air pollutants and dust fallout. Comparison of the predicted concentrations will be made with the South African National Ambient Air Quality Standards and Dust Control Regulations to determine compliance. General recommendations will be provided regarding the mitigation and management of the identified potential impacts. This is expected to include the implementation of an air quality monitoring programme.

9.2.5 Noise

Rayten Engineering Solutions (Pty) Ltd has been appointed to complete a Noise Impact Assessment for the Project.

The criteria to define the potential noise limits will be the International Finance Corporation (IFC): General EHS Guidelines, the guidelines from the WHO and SANS 10103:2008. Sound

Propagation modelling will make use of the algorithms defined by SANS 10357:2004, SANS 10210:2004 and ISO 9613-2 making use of a commercial modelling package (SoundPlan).

The Environmental Noise Impact Assessment Report will:

- Identify potential noise-sensitive receptors using available information (Google Earth, EIA's in Public Domain).
- Collate available information for the study area.
- Compare the appropriate SANS rating level against measured Ambient Sound levels to determine the potential impact on the surrounding environment, focusing on potential sensitive receptors.
- Recommend whether the expected sound levels are acceptable, and where they are not acceptable, recommend potential measures to reduce expected sound levels emanating from the project to acceptable levels.

The assessment will meet the requirements of the Protocol for Specialist Assessment and Minimum Report Content Requirements for Noise Impacts published in Government Notice No 320 of 20 March 2020.

9.2.6 Terrestrial Ecology (Flora and Fauna)

Scientific Terrestrial Services have been appointed to complete a terrestrial biodiversity assessment for the Project.

The assessment will meet the requirements of the Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity published in Government Notice No 320 of 20 March 2020.

Floral and Faunal surveys have been included. Single-season field visits were undertaken in November 2022.

9.2.7 Freshwater and aquatic ecology

Scientific Aquatic Services have been appointed to complete a freshwater and aquatic ecological assessment for the Project.

The assessment will meet the requirements of the Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Aquatic Biodiversity published in Government Notice No 320 of 20 March 2020.

9.2.8 Agricultural (soils, land use and land capability)

Zimpande Research Collaborative (Pty) Ltd have been appointed to complete an assessment on the soils, land use, land capability and agricultural potential of the site.

The assessment will meet the requirements of the Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Agricultural Resources published in Government Notice No 320 of 20 March 2020.

9.2.9 Hydropedology

Zimpande Research Collaborative (Pty) Ltd have been appointed to complete hydropedology impact assessment for the Project.

Wetland hydrology is influenced by surrounding soil conditions and landscape position, amongst other factors. Whereas the ability of soils to recharge downstream wetlands and/or groundwater is largely driven by the hydraulic conductivity, which is influenced by porosity according to particle size distribution (texture).

Based on the new guidelines by the department of Water and Sanitation (2021), hydrogeological assessments are divided into four steps:

- 1) Identification of dominant hillslopes.
- 2) Conceptualising hillslope hydrogeological responses.
- 3) Quantification of hydraulic properties and flow rates.
- 4) Quantification of hydrogeological fluxes.

9.2.10 Archaeology

The phase I heritage assessment is a requirement in terms of the National Heritage Resources Act, 1999 (Act No 25 of 1999) (NHRA) and will be undertaken on the project footprint areas by a registered archaeologist.

Archaeos Culture & Cultural Research Consultants were appointed to complete the assessment. Field work was conducted in January 2023 and identified heritage resources excluded from the project footprint as far as possible.

9.2.11 Palaeontology

The assessment requires a field visit due to the High Palaeontological Sensitivity of the site as identified in the SAHRIS palaeontology map.

Professor Marion Bamford was appointed to complete the Palaeontological Impact Assessment.

9.2.12 Visual

Scientific Aquatic Services have been appointed to complete the Visual Impact Assessment (VIA) for the Project. The VIA will be conducted in line with the following documents relating to South African VIA guidelines and methodology in South Africa, in addition to the use of other applicable reference material:

- Oberholzer, B., 2005. Guideline for involving visual & aesthetic specialists in EIA processes: Edition 1. CSIR Report No. ENV-S-C 2005 053 F. Republic of South Africa, Provincial Government of the Western Cape, Department of Environmental Affairs & Development Planning, Cape Town; and
- The Institute of Environmental Management and Assessment (IEMA)/ Landscape Institute (2013) Guidelines for Landscape and Visual Impact Assessment. 3rd Edition.

The assessment will be conducted across three phases. As part of Phase 1, desktop information will be gathered to obtain background information on the project. As part of Phase 2, field assessments will be undertaken, and assessment methods as outlined in the section below will be applied. Once site-specific issues have been identified an impact assessment will be undertaken according to a pre-defined impact assessment methodology. The baseline VIA report will also highlight all management and mitigation measures deemed necessary in order

to avoid and mitigate impacts associated with the proposed project. This will conclude Phase 3. Digital 3D topographic models will be developed to support the visual analyses.

9.2.13 Socio-Economic

Urban-Econ Development Economists were appointed to undertake a socio-economic impact assessment for the Project.

Based on the understanding of the project's objectives, the scope of work for the socio-economic specialist is outlined in the following list.

- Delineate the zone of influence in consultation with other specialists on the team;
- Determine the affected communities and economies located in the zone of influence and identify sensitive receptors and beneficiaries within the delineated study area, i.e. people, land uses and economic activities that could be directly or indirectly negatively affected by the proposed project or benefit from it;
- Determine the data required to assess potential impacts and respond to the questions outlined in the guidelines related to needs and desirability assessment;
- Review secondary data and assess data gaps;
- Engage with the EAP, other specialists on the team and the client to gain necessary background on the project;
- Conduct a site visit and collect primary social and economic data (through personal or telephonic interviews) of the parties that may be directly or indirectly be affected (positively or negatively) by the proposed project to address data gaps;
- Create a socio-economic profile of the potentially affected and benefiting environment, which would then represent a status of the environment under the "no-go" alternative and would be used to assess the potential changes ensued from the proposed project;
- Quantify the potential positive and negative social and economic effects of the proposed development on the local and regional economic activities;
- Evaluate the potential positive and negative impacts, and assess cumulative impacts;
- Develop a mitigation plan by proposing mitigation measures for negative effects and enhancement measures for positive impacts.

9.2.14 Traffic

JG Afrika was appointed to complete a traffic impact assessment for the Project. The assessment will include:

- Assessment of current and future public transport services and facilities, etc. in the vicinity of the site.
- Assessment of current non-motorised transport (NMT) activity and facilities provided or planned.
- Assessment of surrounding road network and any possible future road planning proposals.
- Traffic counts need to be conducted in the vicinity of the site. The data will be used to establish the status quo of the transport operations on the surrounding road network. Capacity analyses will inform the impact of the proposed development on the external road network.

- Road safety aspects will also be assessed. The Traffic Engineers who would work on this study are experienced and certified Road Safety Auditors as well.
- The report will present the findings of the assessment including the number of expected inbound and outbound trips, queuing analysis and stacking requirements at access points, assessment of proposed access geometries and access control; internal circulation and location of weigh bridges and recommendations to adhere to Road Safety principles.

9.2.15 Blasting

Blast Management & Consulting has been appointed to complete the Blasting Impact study for the Project.

- The study will identify receptors that could be influenced by blasting operations,
- Possible negative influences from blasting operations and specific ground vibration, air blast and fly rock will be identified, and mitigation measures recommended,
- These mitigation measures can also be used in tenders to ensure contractors adhere to the requirements,
- People surrounding mining projects are sensitive to the influences from blasting operations and could have significant influence on the success of such operations.

9.2.16 Rehabilitation plan and closure cost assessment

NEMA prescribes that mines must comply with the prescribed financial provision for the rehabilitation, closure and on-going post decommissioning management of negative environmental impacts arising from the mining operation.

The Financial Provision Regulations, 2015 (as amended), regulates the determination and provision as contemplated in NEMA for the costs associated with the management, rehabilitation and remediation of environmental impacts resulting from mining operations. The Regulations apply to applicants and holders of mining rights and permits.

The scope will involve the compilation of an integrated report combining the Annual Rehabilitation Plan, Final Rehabilitation Plan, and Environmental Risk Assessment Report. These reports must be updated on an annual basis for the Life of Mine.

Rates will be obtained for demolition and / or removal of the various types of infrastructure and structures and the rehabilitation of areas from three different contractors, and an average cost will be calculated for the different rehabilitation activities that will be required. Cabanga Environmental have been appointed to complete this assessment.

10 Assumptions and limitations relevant to this report

This Scoping Report has not yet incorporated the views of I&APs. The report is made available for a review and comment period of 30 days, and will be updated with comments received from authorities and the public following conclusion of the public review period.

The specialist studies that have been commissioned as part of this proposed Project have not yet been completed. Where specialists contributed to the assimilation of baseline information, impacts or mitigation measures, such inputs have been referenced. Other information presented in this report is based on available desktop information. This report will therefore be updated as more site-specific specialist input is received.

The level of project detail presented in this report will be refined as engineering designs progress. It is not realistic to expect applicants to undertake detail designs of the proposed project and all its elements prior to commencing with EIA –

- the early commencement of the Scoping & EIA Process enables the engineering teams to take environmental matters into consideration in their designs of project infrastructure, often resulting in improved options analysis and sustainable development; and
- undertaking of detailed designs is associated with significant expenditure. It is fair to allow an applicant the opportunity to evaluate the environmental and permitting feasibility of a project prior to advancing to a detailed design stage.

The level of project detail presented in this report is sufficient to ensure a realistic identification of potential impacts. In assessing the potential significance of those impacts, the precautionary principle was implemented and a worst-case scenario assessed in each instance.

10.1 Specific Information Required

The Scoping Report must also address the matters referred to in section 24(4)(a) and (b) of the NEMA. The provisions of this section, and how these are addressed in this report are shown in Table 24:

Table 24: How the provisions of NEMA Section 24(4)(a) and (b) are addressed in this report

Provision of NEMA	Relevance to this application and report
(4) Procedures for the investigation, assessment and communication of the potential consequences or impacts of activities on the environment – (a) must ensure, with respect to every application for an environmental authorisation—	
<i>(i) coordination and cooperation between organs of state in the consideration of assessments where an activity falls under the jurisdiction of more than one organ of state;</i>	The DMRE is the competent authority for all mining-related Projects in terms of the MPRDA, NEMA and NEMWA. The DWS is the competent authority in terms of the NWA and will also be asked to comment on the NEMWA application as part of the DMRE internal evaluation procedures. Various commenting authorities have been included in the I&AP database for the Project and will be consulted throughout the EIA.

Provision of NEMA	Relevance to this application and report
<i>(ii) that the findings and recommendations flowing from an investigation, the general objectives of integrated environmental management laid down in this Act and the principles of environmental management set out in section 2 are taken into account in any decision made by an organ of state in relation to any proposed policy, programme, process, plan or project;</i>	It is assumed that the decision-making authorities will take the provisions of section 2 of the NEMA into account when evaluating the Project, based on the information presented in the EIA/EMPr Reports once compiled in due course.
<i>(iii) that a description of the environment likely to be significantly affected by the proposed activity is contained in such application;</i>	Please see the baseline description in section 7 of this report. This information will be updated as specialist studies are concluded.
<i>(iv) investigation of the potential consequences for or impacts on the environment of the activity and assessment of the significance of those potential consequences or impacts; and</i>	A preliminary impact identification and assessment is presented in section 8.2 of this report. This will be expanded upon, refined and updated as the project and specialist assessments progress.
<i>(v) public information and participation procedures which provide all interested and affected parties, including all organs of state in all spheres of government that may have jurisdiction over any aspect of the activity, with a reasonable opportunity to participate in those information and participation procedures; and</i>	The PPP is discussed in section 6 and Appendix C of this report. This report is being made available for a public comment period.
(b) must include, with respect to every application for an environmental authorisation and where applicable—	
<i>(i) investigation of the potential consequences or impacts of the alternatives to the activity on the environment and assessment of the significance of those potential consequences or impacts, including the option of not implementing the activity;</i> <i>(ii) investigation of mitigation measures to keep adverse consequences or impacts to a minimum;</i>	This is the scoping report and does not yet include detailed investigation of potential impacts or management measures. These can only be assessed in detail in the EIA Phase of the project. Alternatives are discussed in this report, including the no-development option. Alternatives will be further assessed as the project progresses.
<i>(iii) investigation, assessment and evaluation of the impact of any proposed listed or specified activity on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999), excluding the national estate contemplated in section 3(2)(i)(vi) and (vii) of that Act;</i>	Listed activities relevant to the proposed project are identified in this report. The impact(s) of these activities must be assessed in further detail in the EIA Phase. Specialist archaeological and palaeontological impact assessments have also been commissioned as part of this project.
<i>(iv) reporting on gaps in knowledge, the adequacy of predictive methods and underlying assumptions, and uncertainties encountered in compiling the required information;</i>	Current assumptions, limitations and gaps are highlighted in this report. This will be expanded upon as the studies progress.

Provision of NEMA	Relevance to this application and report
<i>(v) Investigation and formulation of arrangements for the monitoring and management of consequences for or impacts on the environment, and the assessment of the effectiveness of such arrangements after their implementation;</i>	Monitoring and management measures are not included in detail in this scoping report. Only preliminary management measures are identified (Table 23) detailed monitoring and management measures will be formulated as the assessment progresses and the EMP is compiled.
<i>(vi) consideration of environmental attributes identified in the compilation of information and maps contemplated in subsection (3); and</i>	The baseline environment is described in this report and will be expanded upon as the studies progress.
<i>(vii) provision for the adherence to requirements that are prescribed in a specific environmental management Act relevant to the listed or specified activity in question.</i>	Provisions of the Waste Act, Heritage Resources Act, Water Act and other relevant legislation are included in this report.

GN320 of 20 March 2020 stipulate the 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 the NEMA when applying for environmental authorisation.

Protocols have been published for the following environmental themes (the specialist studies that have been commissioned as part of the EIA Phase will apply these protocols where relevant to this application):

- Agriculture (see section 9.2.8 of this report);
- Terrestrial Biodiversity (see section 9.2.6 of this report);
- Aquatic Biodiversity (see section 9.2.7 of this report);
- Noise (see section 9.2.5 of this report);
- Defence (screening tool indicates Low Sensitivity for the Defence Theme, therefore no further assessment is required);
- Civil Aviation: medium sensitivity indicated in the Screening Tool Report: The site is between 8km and 15km of a civil aviation aerodrome, in this case, the Newcastle Municipal Airport. Air Traffic Navigational Services (ATNS) and the Civil Aviation Authority (CAA) are included in the Project's I&AP database. As part of the EIA phase, Cabanga will compile a site sensitivity verification and Compliance Statement in accordance with the Protocol.

11 Conclusion

The Prospecting Rights for coal (KZN30/5/1/1/37PR) affects Portions of the Farms Craig No 2989-HS, Glen Ashton No 8589-HS, Harwarden No 8915-HS, Waterfall No 3335-HS and Dumblane No 3317-HS, west of Newcastle in the KwaZulu-Natal Province. The Prospecting Right is being transferred to Minetek Resources in terms of Section 11 of the MPRDA. Minetek have applied to graduate the prospecting right to a mining right.

The proposed surface activities associated with the Mine will be limited to portions of the remaining extent and portion 1 of the Farm Craig 2989-HS, Mineral Area 1 on the remainder of portion 4 of the Farm Waterfall 3335HS and Portion 1 of the Farm Waterfall 3335-HS, with the remaining farms earmarked for future underground mining.

Mining will involve the open pit rollover mining with progressive rehabilitation using standard mine equipment and machinery. Blasting is expected to be required. Mineral Processing on-site will be limited to crushing, screening and sorting, whereafter product coal will be trucked off-site for further processing at other facilities, or to market.

This Scoping Report was prepared according to the provisions of the NEMA and EIA Regulations, and aims to:

- identify the policies and legislation relevant to the proposed project (Section 3);
- motivate the need and desirability of the proposed project and Site (Section 4);
- assess alternatives to the proposed project and project site (Section 5);
- identify the key issues to be addressed in the assessment phase (Section 8.2);
- agree on the level of assessment to be undertaken, including the methodology to be applied, the expertise required as well as the extent of further consultation to be undertaken to determine the impacts and risks the activity will impose on the preferred site through the life of the activity (Section 9);
- identify possible measures to avoid, manage or mitigate identified impacts and determine the extent of the residual risks that need to be managed and monitored (Section 8.2).

This Report is submitted to I&APs and all known stakeholders for a comment period of 30 days. A public meeting will also be held during this comment period.

Following the comment period, this report will be updated with comments received, and the EAPs responses to each comment received, and submitted to the DMRE for consideration. Once the DMRE approves the Scoping Report and Plan of Study for EIA, the EIA phase can be undertaken.

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Appendix A: CV of the EAP

Appendix B: Preliminary Impact Assessment and Mitigation Tables

No	Impact description	Nature of Impact	Probability		Sensitivity of the Aspect		Severity of the Impact		Duration		Scale Extent /		Significance (without Mitigation)		Mitigation (can the impact be reversed, avoided, managed or mitigated?)	Probability		Sensitivity of the Aspect		Severity of the Impact		Duration		Scale Extent /		Significance (with Mitigation)	
1	Physical alteration of pre-existing geology by excavation and mining.	Negative	5	Definite	1	Not sensitive	5	High	5	Permanent	2	Site	6	High	The impact cannot be avoided, mitigated or reversed.	5	Definite	1	Not sensitive	5	High	5	Permanent	2	Site	6	High
3	Physical alteration of pre-existing topography by excavations, stockpiles and infrastructure.	Negative	5	Definite	3	Sensitive	4	Moderate to High	4	Long Term	3	Local	7	High	Reduce impact severity by placement and maintenance of stockpiles. Prevent erosion, vegetate stockpiles, Reduce duration by rehabilitation.	5	Definite	3	Sensitive	2	Slight to Moderate	3	Medium Term	3	Local	5	Moderate
4	Loss of topsoil due to stripping and improper soil handling procedures.	Negative	5	Definite	4	Very sensitive	4	Moderate to High	4	Long Term	1	Isolated	6	High	The probability of the impact occurring can be reduced significantly by the strict implementation of proper soil handling procedures. Strip and stockpile topsoil separately from subsoil material. Protect stockpiles from erosion, compaction, contamination. Stockpile topsoil for the shortest possible time	2	Possible	4	Very sensitive	4	Moderate to High	4	Long Term	1	Isolated	2	Low

No	Impact description	Nature of Impact	Probability		Sensitivity of the Aspect		Severity of the Impact		Duration		Scale Extent		Significance (without Mitigation)		Mitigation (can the impact be reversed, avoided, managed or mitigated?)		Probability		Sensitivity of the Aspect		Severity of the Impact		Duration		Scale Extent		Significance (with Mitigation)		
																before use in rehabilitation. After reinstatement of topsoil, ensure rehabilitated areas are protected from erosion (install contour berms and vegetate areas immediately following topsoil replacement).													
5	Loss of land capability due to failure to rehabilitate after mining	Negative	3	Probable	4	Very sensitive	4	Moderate to High	5	Permanent	2	Site	4	Moderate	Ensure mining and rehabilitation planning is done properly, and implemented per approved rehabilitation plans.	1	Unlikely	4	Very sensitive	4	Moderate to High	5	Permanent	2	Site	1	5	Insignificant	
6	Impacts on catchment yield due to retention of dirty water on site	Negative	5	Definite	2	Somewhat sensitive	1	Slight	4	Long Term	3	Local	5	Moderate	Minimise the area that can be considered "dirty", to reduce the volume of mine-affected water that must be retained on site. Ensure effective clean- and dirty water separation throughout all phases.	5	Definite	2	Somewhat sensitive	1	Slight	3	Medium Term	1	Isolated	3	5	Low	

No	Impact description	Nature of Impact	Probability		Sensitivity of the Aspect		Severity of the Impact		Duration		Scale Extent		Significance (without Mitigation)		Mitigation (can the impact be reversed, avoided, managed or mitigated?)		Probability		Sensitivity of the Aspect		Severity of the Impact		Duration		Scale Extent		Significance (with Mitigation)		
			4	Highly Probable	3	Sensitive	3	Moderate	4	Long Term	3	Local	5	Moderate	2	Possible	3	Sensitive	3	Moderate	2	Short to Medium Term	3	Local	2	2	Low		
7	Surface water quality deterioration due to erosion causing sedimentation, or due to chemical contamination from the Mine.	Negative	4	Highly Probable	3	Sensitive	3	Moderate	4	Long Term	3	Local	5	Moderate	2	Prevent erosion on site (contour berms, vegetating bare areas). Prevent chemical spills: provide fit for purpose storage and handling facilities for chemicals and hydrocarbons. Restrict use of chemicals to trained persons. Ensure spill response for accidental spills.	2	Possible	3	Sensitive	3	Moderate	2	Short to Medium Term	3	Local	2	2	Low
8	Reduced Groundwater levels in the operational phase due to dewatering.	Negative	4	Highly Probable	4	Very sensitive	3	Moderate	4	Long Term	3	Local	5	Moderate	6	If the Mine affects water availability, the Mine will have to provide an alternative water supply to affected land owners	4	Highly Probable	4	Very sensitive	1	Slight	3	Medium Term	1	Isolated	3	6	Low
9	Groundwater contamination due to AMD and decant.	Negative	4	Highly Probable	4	Very sensitive	5	High	5	Permanent	4	Regional	7	High	2	Detailed groundwater modelling to be undertaken in the EIA-phase. If decant is expected, a decant management plan must be developed before project	4	Highly Probable	4	Very sensitive	5	High	4	Long Term	1	Isolated	5	6	Moderate

No	Impact description	Nature of Impact	Probability		Sensitivity of the Aspect		Severity of the Impact		Duration		Scale Extent		Significance (without Mitigation)		Mitigation (can the impact be reversed, avoided, managed or mitigated?)		Probability		Sensitivity of the Aspect		Severity of the Impact		Duration		Scale Extent		Significance (with Mitigation)		
																commencement, and implemented before decant is expected to start, to ensure decant water is captured and treated (passive treatment should suffice) prior to discharge to downstream environments.													
10	Impacts to wetlands and aquatic ecology due to reduced water availability or contamination.	Negative	4	Highly Probable	4	Very sensitive	5	High	4	Long Term	4	Regional	6 8	High	Prevent erosion on site (contour berms, vegetating bare areas). Prevent chemical spills: provide fit for purpose storage and handling facilities for chemicals and hydrocarbons. Restrict use of chemicals to trained persons. Ensure spill response for accidental spills. Prevent inadvertent impact to wetlands outside of the Project footprint by demarcating	4	Highly Probable	4	Very sensitive	3	Moderate	3	Medium Term	2	Site	4 8	Moderate		

No	Impact description	Nature of Impact	Probability		Sensitivity of the Aspect		Severity of the Impact		Duration		Scale Extent		Significance (without Mitigation)		Mitigation (can the impact be reversed, avoided, managed or mitigated?)		Probability		Sensitivity of the Aspect		Severity of the Impact		Duration		Scale Extent		Significance (with Mitigation)	
															these and their buffer zones as no-go areas.													
11	Destruction of terrestrial flora and fauna due to development of the project and associated infrastructure.	Negative	5	Definite	3	Sensitive	5	High	4	Long Term	2	Site	70	High	Keep the affected footprint as small as possible. Consider increased conservation efforts in unaffected areas of the site in consultation with conservation authorities. Ensure rehabilitation is implemented timeously.	5	Definite	3	Sensitive	4	Moderate to High	3	Medium Term	1	Isolated	55	Moderate	
12	Increased noise and dust from Project activities.	Negative	4	Highly Probable	3	Sensitive	4	Moderate to High	4	Long Term	3	Local	56	Moderate	Implement strict speed limits. Implement vehicle, machinery and equipment maintenance per manufacturer specification. Implement dust suppression.	4	Highly Probable	3	Sensitive	2	Slight to Moderate	4	Long Term	2	Site	44	Moderate	
13	Destruction or damage to Heritage Resources	Negative	4	Highly Probable	5	Irreplaceable	5	High	5	Permanent	1	Isolated	64	High	Complete the grave relocation according to accepted procedures, prior to mining of Pit D1.	2	Possible	5	Irreplaceable	5	High	5	Permanent	1	Isolated	32	Low	

No	Impact description	Nature of Impact	Probability		Sensitivity of the Aspect		Severity of the Impact		Duration		Scale Extent		Significance (without Mitigation)		Mitigation (can the impact be reversed, avoided, managed or mitigated?)		Probability		Sensitivity of the Aspect		Severity of the Impact		Duration		Scale Extent		Significance (with Mitigation)		
																Implement the recommendations of the Blast specialist to ensure inadvertent damage due to blasting is avoided. Appoint a heritage specialist to compile, and implement the management plan for each heritage resource in the project area. Implement a chance-find procedure													
14	Positive socio-economic impacts - direct and indirect job creation	positive	4	Highly Probable	3	Sensitive	1	Slight	4	Long Term	3	Local	4	Moderate	Enhance positive impacts by local recruitment, upskilling, skills transfer and implementation of the SLP.	4	Highly Probable	3	Sensitive	1	Slight	4	Long Term	3	Local	4	4	Moderate	
15	Negative socio-economic impacts, loss of existing agricultural jobs, increase in social ills due to influx of migrant job seekers.	Negative	4	Highly Probable	3	Sensitive	2	Slight to Moderate	4	Long Term	4	Regional	5	Moderate	Clear communication to manage expectations of job-seekers and prevent influx of migrant labour. Recruit locally.	4	Highly Probable	3	Sensitive	2	Slight to Moderate	4	Long Term	3	Local	4	8	Moderate	

No	Impact description	Nature of Impact	Probability		Sensitivity of the Aspect		Severity of the Impact		Duration		Scale Extent		Significance (without Mitigation)		Mitigation (can the impact be reversed, avoided, managed or mitigated?)		Probability		Sensitivity of the Aspect		Severity of the Impact		Duration		Scale Extent		Significance (with Mitigation)	
17	Increased traffic resulting from the project, causing road deterioration and potential road safety issues.	Negative	4	Highly Probable	4	Very sensitive	5	High	4	Long Term	3	Local	6	High	4	Ensure driver awareness training is provided, ensure safe line-of-sight and vehicle turning onto roads. Liaise with roads authorities for road maintenance plans.	2	Possible	4	Very sensitive	5	High	4	Long Term	3	Local	3	Low

Appendix C: Public Participation Report

Appendix D: Pre-Application Consultation with DMRE

Appendix E: Proof of submission of Applications
