



REPORT

Draft Scoping Report for the Proposed Discard Facility at the Zibulo Colliery Opencast Operation

Anglo American Inyosi Coal (Pty) Ltd

Submitted to:

Department of Mineral Resources and Energy

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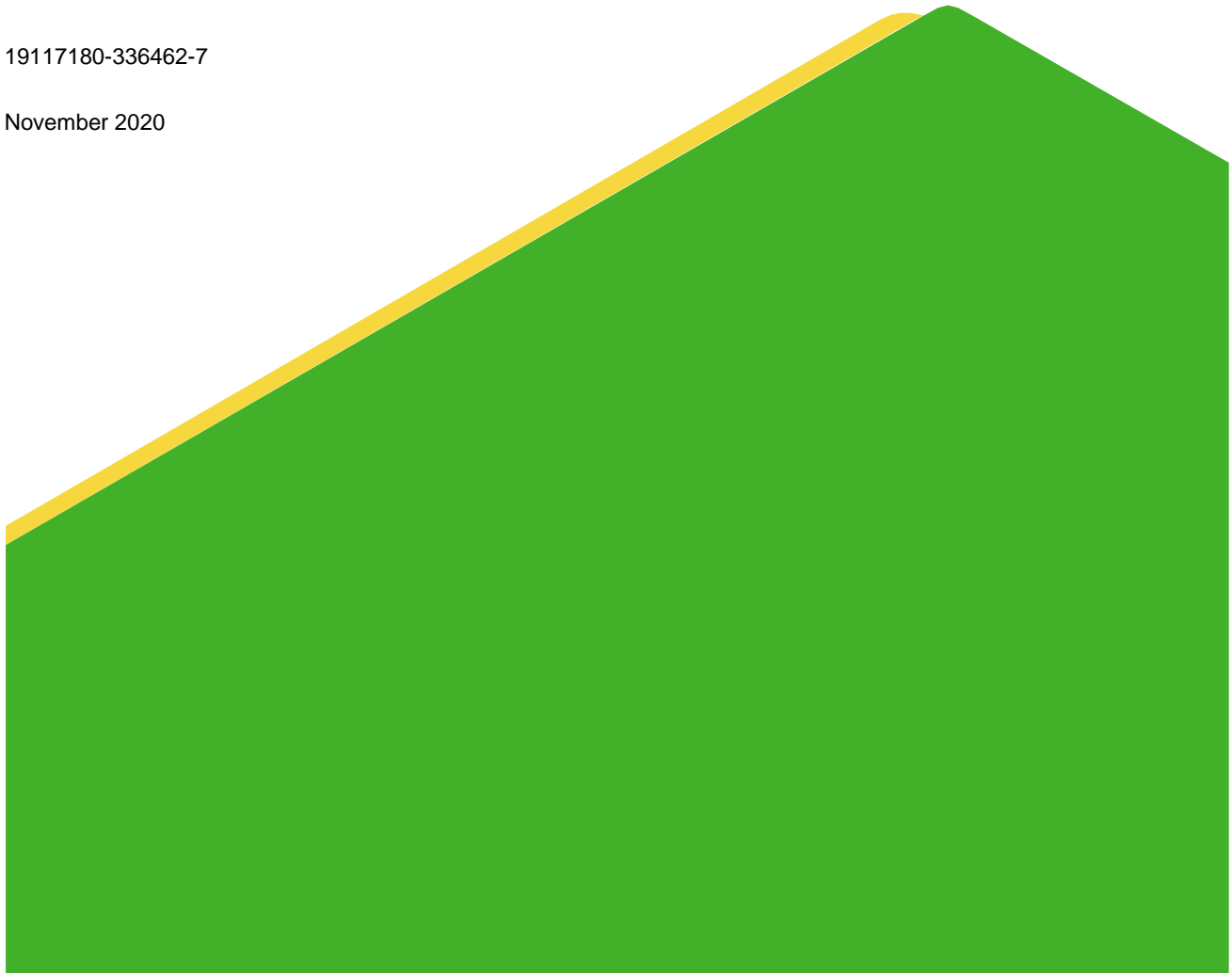
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19117180-336462-7

November 2020



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Mineral Resources
REPUBLIC OF SOUTH AFRICA

SCOPING REPORT

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

NAME OF APPLICANT: Anglo American Inyosi Coal (Pty) Limited: Zibulo Colliery

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FILE REFERENCE NUMBER SAMRAD: MP 30/5/1/2/2/338 MR

IMPORTANT NOTICE

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

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

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

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

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

OBJECTIVE OF THE SCOPING PROCESS

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

PURPOSE OF THIS DOCUMENT

Anglo American Inyosi Coal (Pty) Ltd (AAIC) proposes to develop a discard facility at its opencast operations at Zibulo Colliery, situated near Ogies in the Mpumalanga Province. The proposed discard facility requires AAIC to submit an application for a Waste Management Licence, supported by an environmental impact assessment (EIA) in terms of the 2014 EIA Regulations, as amended April 2017, to the competent authority the Department of Mineral Resources and Energy (DMRE).

As part of the EIA process, AAIC is required to submit a scoping report, an EIA report and an environmental management programme report (EMPr), which describe the environmental impacts of the proposed development and how they will be managed and mitigated.

Golder Associates Africa (Pty) Ltd, an independent environmental assessment practitioner, has been appointed by AAIC to conduct the EIA and associated licensing processes.

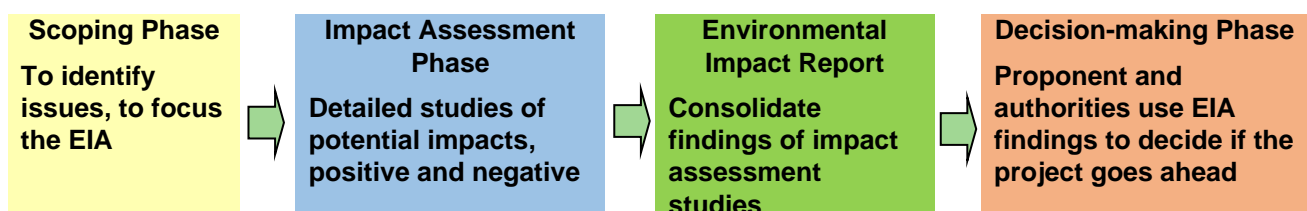
During this process, the public is consulted on an ongoing basis, with issues and concerns being recorded and incorporated into the process for evaluation. This draft scoping report (DSR) is being presented to stakeholders so that they are given the opportunity to comment on the project, the proposed activities and the proposed scope of the specialist studies. The comments received will be recorded in the final scoping report, which will be submitted to the DMRE for approval. Further opportunity will be provided to stakeholders to comment during the impact assessment phase. Feedback will also be provided when a decision on the project has been made.

The due date for comment on this draft scoping report is **Friday, 04 December 2020**. Comments received during the public review period will be acknowledged and recorded in the final version of the scoping report, which will be submitted to the DMRE.

Summary of what the scoping report contains

This report contains:

- A description of the proposed mining related activities;
- An overview of the EIA process, including public participation;
- A description of the existing environment in the proposed project area;
- The anticipated environmental issues and impacts which have been identified;
- The proposed scope of specialist studies planned for the Impact Assessment phase; and
- A list of interested and affected parties and their comments.



The figure above shows the various phases of an EIA. This EIA is in the scoping phase, during which interested and affected parties comment on the proposed project.

PUBLIC REVIEW OF THE SCOPING REPORT

This scoping report is available for comment for 30 days until **Friday, 04 December 2020** at the public places in the project area listed in the table and upon request from the Public Participation Office of Golder Associates.

Name of Public Place	Address
Phola Police Station	2171 Mthimunye Street, Phola
Ogies Police Station	1 Main Road, Ogies
eMalahleni Main library	Cnr. Hofmeyer and Elizabeth Avenue, eMalahleni
Ogies Spar	Ogies Public Library, Main Street, Ogies, 2230
Golder Associates Africa	Maxwell Office Park, Magwa Crescent West, Waterfall City, Midrand

OPPORTUNITIES FOR PUBLIC REVIEW

Stakeholders who wish to comment on the scoping report may do so in any of the following ways:

- Completing the comment sheet enclosed with this report or on-line via the Golder website (www.golder.com/public);
- Additional written submissions; and
- Comment by e-mail or telephone.

DUE DATE FOR COMMENT ON THIS SCOPING REPORT IS 04 DECEMBER 2020

Please submit comments to the Public Participation Office:

Brian Magongoa / Mabel Qinisile

Golder Associates Africa (Pty) Ltd

P O Box 6001

HALFWAY HOUSE, 1685

Tel: (011) 254 4800

Fax: 086 582 1561

E-mail: ppoffice@golder.co.za

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Focus Group Meeting 18 September 2020

TABLE OF ACRONYMS AND ABBREVIATIONS

Acronym	Definition
AAIC	Anglo American Inyosi Coal
AQMP	Air Quality Management Plan
CAPEX	Capital Expenditure
CBD	Central Business District
CRR	Comments and Response Report
CV	Curriculum Vitae
DEA	Department of Environmental Affairs
DMRE	Department of Mineral Resources and Energy
DSR	Draft scoping report
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
ELM	eMalahleni Local Municipality
EMPr	Environmental Management Programme reports
HPA	Highveld Priority Area
I&AP	Interested and Affected Party
IWUL	Integrated Water Use Licence
LOM	Life of Mine
MAR	Mean Annual Recharge
MDARDLEA	Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs
MPRDA	Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002)
NAAQS	National Ambient Air Quality Standards;
NDM	Nkangala District Municipality
NEMA	National Environmental Management Act, 1998 (Act 107 of 1998)

Acronym	Definition
NEMAQA	National Environmental Management: Air Quality Ac, 2004 (Act 39 of 2004)
NEMWA	National Environmental Management: Waste Act, 2008 (Act 59 of 2008)
SANRAL	South African National Roads Agency
NWA	National Water Act, 1998 (Act 36 of 1998)
OPEX	Operating Expenditure
PCD	Pollution Control Dam
PCPP	Phola Coal Processing Plant
PES	Present Ecological Status
QA/QC	Quality Assurance Quality Control
ROM	Run of Mine
SAHRA	South African Heritage Resources Agency
South32	South32 SA Coal Holdings (Pty) Ltd
SP	Significance Points
VOC	Volatile Organic Compounds
WMA	Water Management Area
WML	Waste Management Licence
WUL	Water Use Licence

1.0 INTRODUCTION AND BACKGROUND

Anglo American Inyosi Coal (Pty) Ltd (AAIC) proposes to develop a discard facility at its opencast operations at Zibulo Colliery, situated near Ogies in the Mpumalanga Province. Zibulo Colliery produces an annual eight million run of mine (ROM) tonnes of export thermal coal, with seven million tonnes per annum coming from its underground sections and the remaining one million tonnes from its opencast pit. Underground operations incorporate bord and pillar continuous miner methods while the contractor-run opencast pit utilises the truck and shovel mining method.

Currently, coal from the opencast operation (and underground operation further south) is transported to the Phola Coal Processing Plant (PCPP). The PCPP is a 50:50 joint venture between AAIC and South32 SA Coal Holdings (Pty) Ltd (South32). The coarse and fine discard produced by PCPP is currently stored in a surface discard facility at South32's Klipspruit Colliery. The facility is reaching capacity (110 ha) by 2021 and an alternative discard facility is required to service the discard requirement of Zibulo Colliery.

It is proposed that a new discard facility be developed over the mined-out opencast pit at Zibulo Colliery. The discard (generated at PCPP) will be transported to the site via a new discard conveyor.

The proposed discard facility will require a waste management licence (WML) in terms of the National Environmental Management Waste Act, 2008 (Act 59 of 2008) (as amended) (NEMWA), and environmental authorisation (A) in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) (as amended) (NEMA). The WML and EA application will need to be supported by a full environmental impact assessment (EIA) process (scoping and impact assessment phases) in terms of the Environmental Impact Assessment Regulations, 2014 (as amended). The competent authority for the application is the Department of Mineral Resources and Energy (DMRE).

As part of the EIA process, this report (draft scoping report) has been compiled, to document the proposed activities and proposed scope of the specialist studies.

1.1 Content of this report

The main purpose of this scoping report is to provide a description of the current baseline environmental conditions within the proposed project area and to present the proposed scope of work to develop the EIA for the proposed activities.

This document has been structured as follows to meet the requirements of the 2014 EIA Regulations, as amended in April 2017:

- **Introduction and overview** – Introduce the project and the project proponent, provides an overview of the project, provides the details of the environmental assessment practitioner (EAP), and explains the EIA process;
- **Project Motivation** – Motivates the need for and desirability of the project;
- **EIA Process** – Summarises the process being undertaken with respect to the EIA for the project, inclusive of the methodology utilised for scoping;
- **Description of the Proposed Project** - Provides a summary of the key project components, the project location, scale, nature and design, production process, main inputs and outputs, schedule and activities during different phases of the project, inclusive of a description of the project location and the properties on which the project will take place;
- **Project Alternatives** – Summarises alternatives considered by the project proponent;

- **Policy, Legal and Administrative Framework** – Discusses the environmental policy, legal, and administrative framework applicable to the proposed project. This framework includes a summary of relevant South African regulations, the applicable administrative framework, and the environmental permitting process;
- **Description of the Environment that may be affected** – Describes the current pre-project biophysical, socio-economic, and cultural status of the area, key characteristics (sensitive or vulnerable areas), important heritage resources, current land use and livelihoods;
- **Environmental Issues and Potential Impacts of the Project** – Summarises the identified impacts, issues and potential mitigation measures that will be assessed further in the EIA. This section also includes the plan of study for the impact assessment;
- **Public Consultation** – This section provides a summary of the public consultation activities proposed and carried out as part of the EIA process;
- **Next Steps in the Process** – Indicates what the next steps in the process are;
- **References** – References to literature consulted; and
- **Appendices** – Technical material supporting the scoping report, including the Curriculum Vitae (CV) of the EAP, public participation supporting information, and document limitations.

2.0 PROPONENT AND PRACTITIONER DETAILS

2.1 Details of the proponent and environmental assessment practitioner

2.1.1 Details of the proponent

For this EIA, the following person may be contacted at Zibulo:

Table 1: Proponents contact details

Proponent Contact Details	
Contact person	Lerato Mazibuko
Address	55 Marshall Street, Johannesburg, 2001
Telephone number	(011) 638 0106
E-mail	lerato.mazibuko@angloamerican.com

2.1.2 Details of environmental assessment practitioner

AAIC has appointed Golder Associates Africa (Pty) Ltd as an independent environmental assessment practitioner (EAP) to undertake the EIA that is required to support the WML and EA application for the proposed discard facility at Zibulo Colliery.

Golder Associates Africa is a member of the world-wide Golder Associates group of companies, offering a variety of specialised engineering and environmental services. Employee owned since its formation in 1960, the Golder Associates group employs more than 7 000 people who operate from more than 180 offices located throughout Africa, Asia, Australasia, Europe, North America and South America. Golder Associates Africa has

offices in Midrand, Florida, Maputo and Accra. Golder has more than 200 skilled employees and can source additional professional skills and inputs from other Golder offices around the world.

Golder has no vested interest in the proposed project and hereby declares its independence as required by the South African EIA Regulations.

For purposes of this EIA, the following persons may be contacted at Golder:

Table 2: Contact details of the environmental assessment practitioner

Contact persons:	Olivia Allen	Brian Magongoa
Purpose:	EIA	Public Participation
Address:	P.O. Box 6001 Halfway House 1685	P.O. Box 6001 Halfway House 1685
Telephone:	011 254 4875	011 254 4800
Fax:	086 582 1561	086 582 1561
E-mail:	oallen@golder.co.za	bmagongoa@golder.co.za

2.1.3 Expertise of environmental assessment practitioner

2.1.3.1 Qualifications of EAP

Education

- B.Sc. (cum laude) Zoology and Geography – University of the Free State (Bloemfontein);
- B.Sc. (Hons) (cum laude) Geography – University of the Free State (Bloemfontein); and
- M.Sc. Water Resource Management - University of Pretoria.

EAP Registration (Environmental Assessment Practitioners of South Africa - EAPASA)

- Registered EAP (Ref. No. 2019/1725)

2.1.3.2 Summary of experience

Olivia Allen has 15+ years' experience in the discipline of Environmental Sciences. Olivia specialises in environmental assessment, regulatory compliance, waste planning and integrated project management.

As a senior consultant, Olivia has successfully led, or been part of, various projects in the mining sector of coal, gold, diamonds, copper and platinum, the petroleum sector of gas extraction, and steel, ferrochrome and electrolytic manganese dioxide industrial sectors. She has extensive experience in mine water treatment related projects and has exposure to mine closure and rehabilitation related projects.

In the past, Olivia has functioned in various roles within the Golder technical stream, including report writing; project management, such as facilitation of meetings, budget control, scheduling and invoicing; and working closely with engineering teams and regulatory authorities to ensure successful project integration and outcomes.

Her environmental technical competencies include the following:

- Conducting Environmental Impact Assessments and compiling Environmental Management Plans;

- Development of Integrated Waste Management Plans;
- Compiling Water Use and Waste Management Licence Applications;
- Stakeholder engagement, including Regulatory Authorities;
- Co-ordination of Integrated Regulatory Processes; and
- Environmental Compliance Assessment and Auditing.

2.2 Description of the property

The proposed discard facility will be located within the mined-out footprint of the pit at Zibulo Colliery (opencast section). It is proposed that the new conveyor follow the alignment of the existing conveyor linking the South32 Klipspruit extension project to the PCPP. The proposed new conveyor will lie to the immediate north of the existing conveyor and cross the R545 on a dedicated bridge crossing. Soon after the crossing of the R545 the conveyor will turn north to the opencast pit for final discard disposal. The entire extent of the conveyor route is confined to mine property belonging to either South32 or AAIC.

The properties associated with the proposed activity are summarised in Table 3.

Table 3: Location of the activity

Farm Name:	Oogiesfontein 4 IS, Klipfontein 3 IS
Application area:	Discard facility: 147.12 ha Discard conveyor: 2-3 km
Magisterial district:	eMalahleni Magisterial district and Nkangala District Municipality
Distance and direction from nearest town:	2 km north of Ogies, 25 km south-west of eMalahleni
21-digit Surveyor General Code for each farm portion:	TOIS000000000000300012 TOIS000000000000300014 TOIS000000000000400039 TOIS000000000000400041 TOIS000000000000400055 TOIS000000000000400063 TOIS000000000000400064

2.3 Locality map

Zibulo Colliery (opencast operation) is situated approximately 25 km south-west of eMalahleni in the Mpumalanga Province (Figure 1). The mine falls within the Wilge River Catchment, which consists of quaternary sub-catchment B20G of the Limpopo-Olifants primary drainage region. The study area drains into Saalklaspuit via one of its tributaries, which in turn drains into the Wilge River. The N12 highway is situated directly north of the site, and the R545 runs along the western boundary of the site.

The locality of the proposed discard facility and proposed conveyor route, in relation to Zibulo Colliery (opencast section), the PCPP, and the existing discard facility at Klipspruit Colliery are indicated in Figure 2 below.

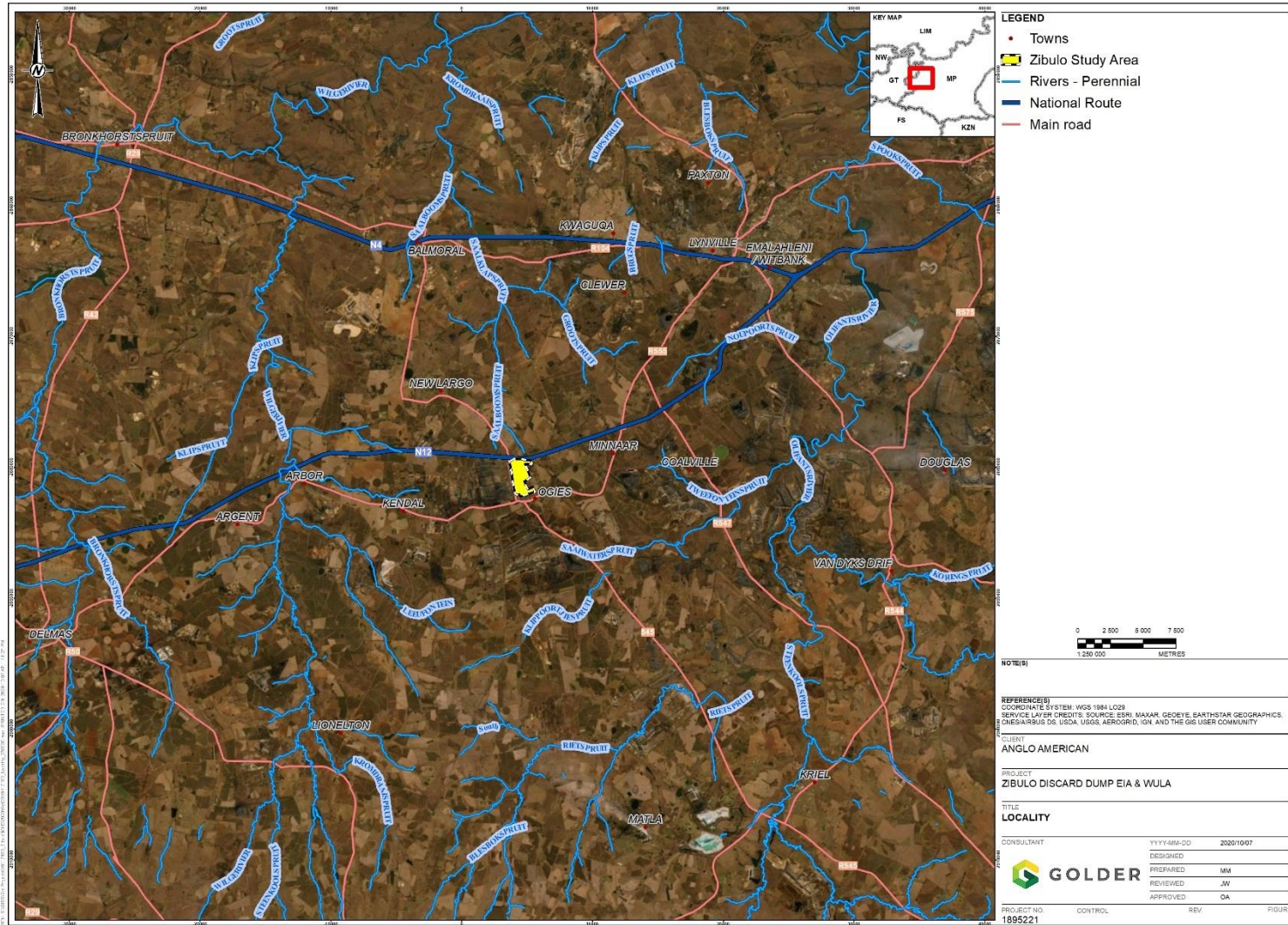


Figure 1: Locality map

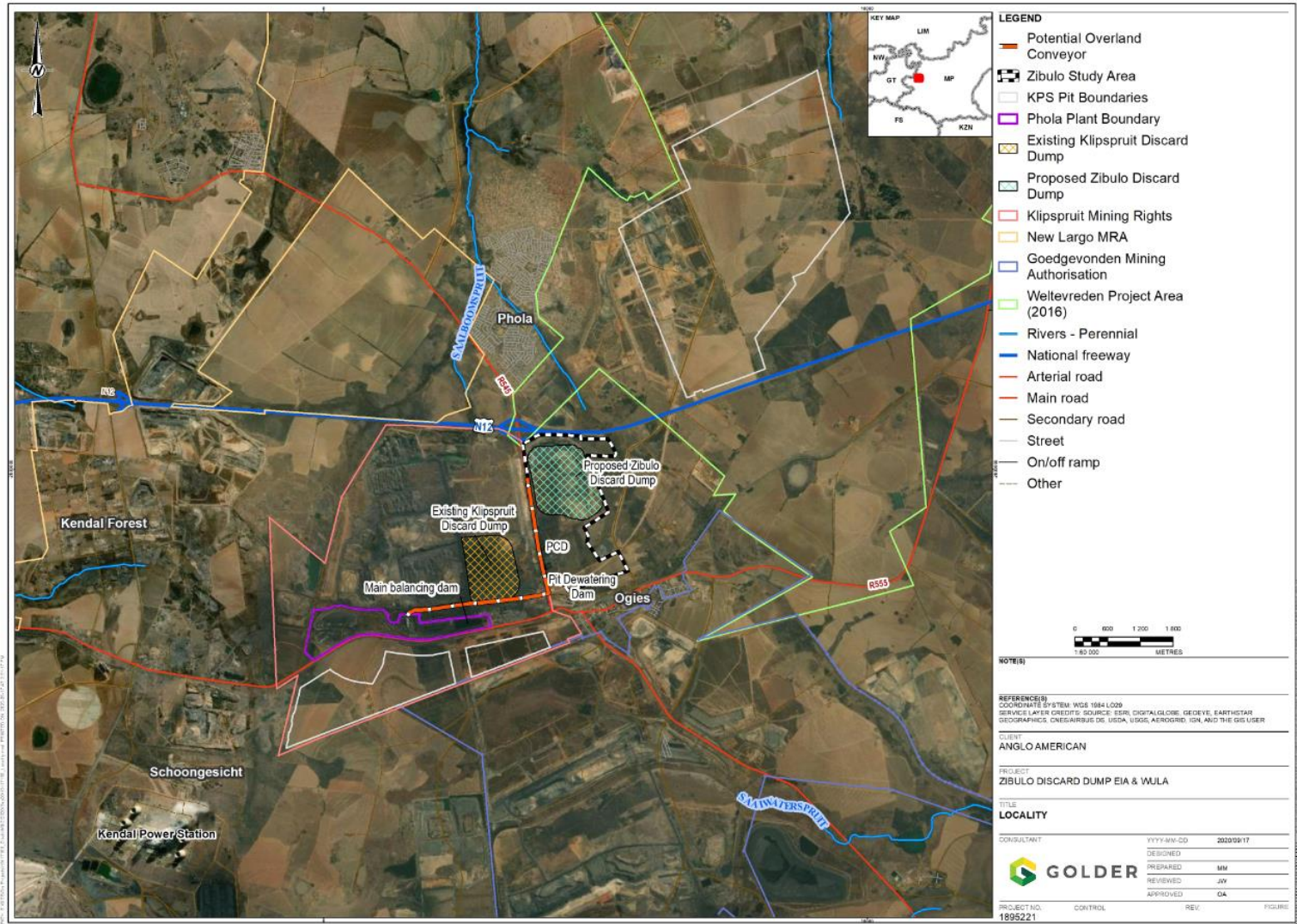


Figure 2: Locality of the proposed discard facility and proposed conveyor route

3.0 DESCRIPTION AND SCOPE OF THE PROPOSED OVERALL ACTIVITY

Zibulo Colliery consists of two parts, namely an underground development located approximately 25 km South West of Ogies and a small opencast section located immediately North West of Ogies. Zibulo Colliery produces an annual eight million run of mine (ROM) tonnes of export thermal coal, with seven million tonnes per annum coming from its underground sections and the remaining one million tonnes from its opencast pit. Underground operations incorporate bord and pillar continuous miner methods while the contractor-run pit utilises truck and shovel methods.

The Zibulo Colliery opencast operations consist of a single pit operation with a pit length of almost 1 km and is classified as a mini pit. Zibulo Colliery has two active mining cuts, namely the North and East cuts. The coal from the opencast operations is transported via truck to the PCPP for beneficiation, where it is washed together with the underground coal. Coal from the underground operation is transported to the Phola Coal Processing Plant via a 16 km conveyor.

The PCPP is a 50:50 joint venture between AAIC and South32 SA Coal Holdings (Pty) Ltd (South32), receiving ROM coal predominantly from AAIC's Zibulo operation and South32's Klipspruit operation. The coarse and fine discard produced from the PCPP is currently deposited onto a surface discard facility on South32's Klipspruit Colliery. The facility is reaching capacity and by 2021 an alternative discard facility is required to service the discard requirement of Zibulo Colliery.

3.1 Proposed activities

It is proposed that a new discard facility be developed over the mined-out opencast pit at Zibulo Colliery. The discard facility will have a life of approximately fifteen (15) years, a total discard disposal capacity of 26 000 m³ (Figure 3) and extend over an area of roughly 150 ha.

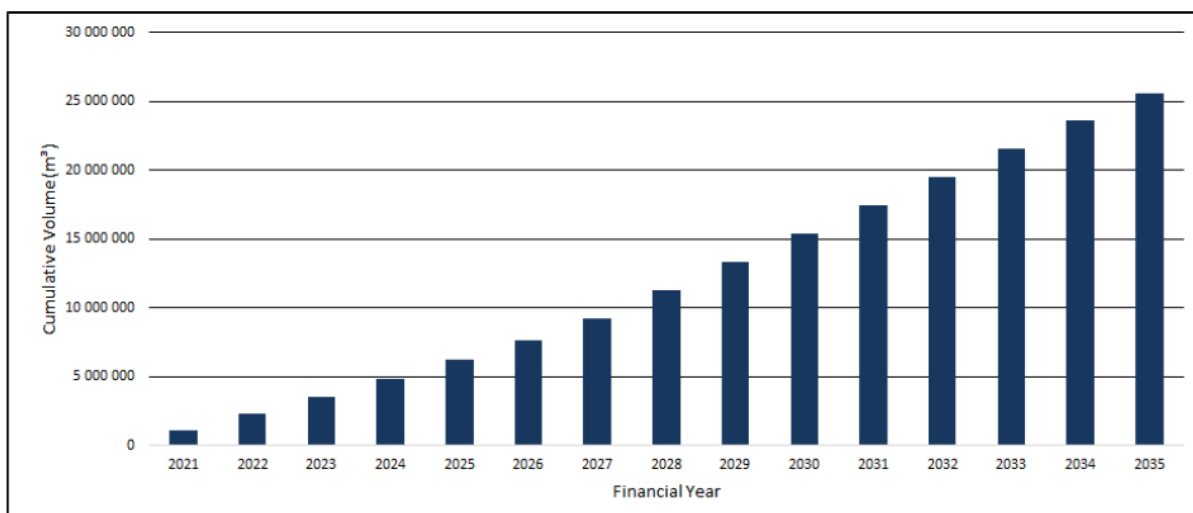


Figure 3: Discard production over the LOM

The discard facility will be designed such that it will be placed over the backfilled pit as illustrated in Figure 4. The facility is anticipated to have a maximum height of 27.5 m above the pit's rehabilitated landform.

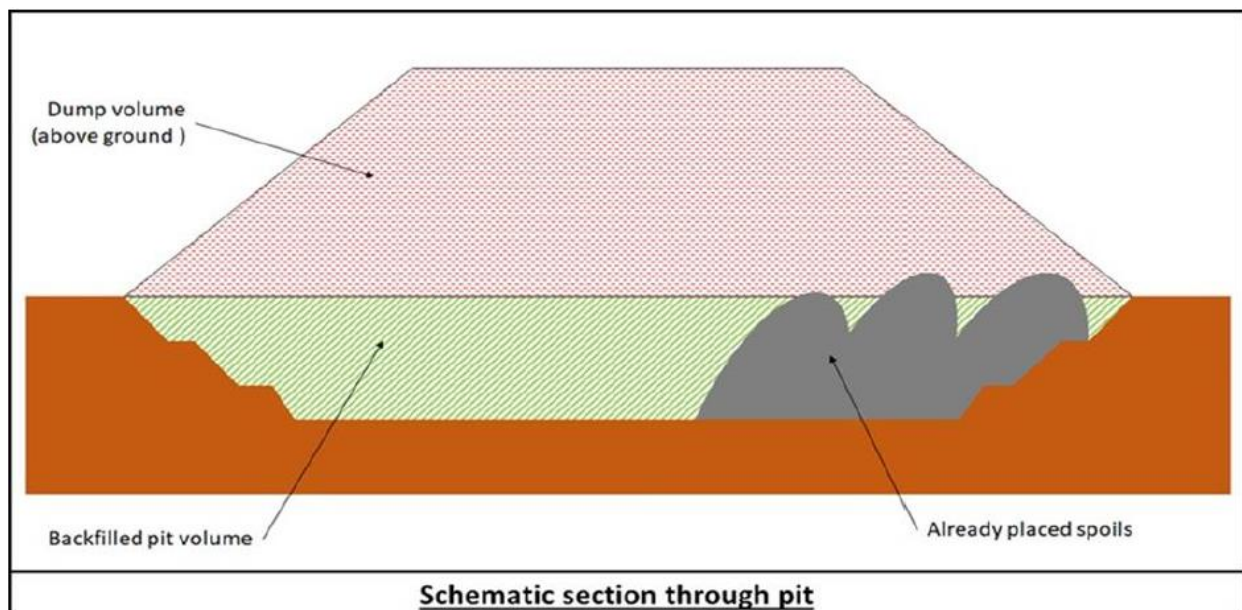


Figure 4: Proposed design of the Zibulo discard facility

The material deposited on the Zibulo discard dump will be deposited as a single stream consisting of coarse discards and filtered fines with the moisture content of the filter cake being around 20 – 23%. The facility will therefore be a dry placed discard waste facility and not a hydraulically placed tailings storage facility.

Seepage from the discard will be managed by the existing pit water management system in place for the mine. Excess mine water make intercepted at the pit is currently sent to the eMalahleni water reclamation plant (EWRP) (via the Klipspruit Colliery's balancing dam) for treatment.

Rehabilitation of the discard facility will require the construction of a cover that will be installed during ongoing rehabilitation. The cover will allow for the following:

- A growth medium suitable for the establishment of vegetation to limit erosion; and
- Limit seepage into the discard facility.

Soil for the cover will be sourced from on site.

The discard (generated at PCPP) will be transported to the site via a new conveyor. It is proposed that the new conveyor follow the alignment of the existing conveyor linking the South32 Klipspruit extension project to the PCPP. The proposed new conveyor will lie to the immediate north of the existing conveyor and cross the R545 on a dedicated bridge crossing. Soon after the crossing of the R545 the conveyor will turn north to the opencast pit for final discard disposal. The entire extent of the conveyor route is confined to mine property belonging to either South32 or AAIC.

3.2 Listed and specific activities

Based upon the currently available information, the proposed project will trigger the following listed activities tabulated in Table 4 and Table 5.

Table 4: Waste management activity requiring waste licensing in terms of GN R. 921 (as amended by GN R. 633)

Listing Notice	Activity No	Activity No. Description	Proposed Activity Description
GN R.921 as amended by GN R. 633	Category B, Activity 11	<i>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).</i>	The development of residue deposit (discard dump)

Table 5: Listed activity requiring environmental authorisation in terms of GN R. 327

Listing Notice	Activity No	Activity No. Description	Proposed Activity Description
GN R.327	Activity 12	(12) The development of – (ii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs – (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse...	The proposed discard facility will be constructed within the mined-out pit, which is located in close proximity to seepage wetland areas (see Figure 9).

3.3 Specific activities to be undertaken

The specific activities associated with the proposed project/activities will be:

- Construction and operation of the proposed discard conveyor;
- Stockpiling of discard material prior to placement onto the spoils;
- Deposition of discard onto the spoils (trucking, dozing and compaction);
- Construction and operation of a storm water control system to ensure clean and dirty water separation;
- Continuation of pit water abstraction system, to intercept seepage from the discard for treatment at the EWRP; and
- Application of soil cover during ongoing rehabilitation.

4.0 POLICY AND LEGISLATIVE CONTEXT

The following section provides a brief overview of the policy and legislative context within which the EIA process will be undertaken. This includes the following key legislation (Table 6):

Table 6: Policy and legislative context

Applicable Legislation and Guidelines used to compile the Report	How will this Development comply with and respond to the Legislation and Policy Context
2014 EIA Regulations (as amended) (GN R.326 of 2017), published under the NEMA	<p>An application for Environmental Authorisation (EA) is being applied. See Table 5 for the relevant listed activity that is triggered.</p> <p>Furthermore, this Scoping Report (and the EIA & EMP) has been compiled in accordance with the requirements of the EIA Regulations, to support the application for a WML and EA.</p> <p>Screening tool assessment in terms of the 2014 EIA Regulations was conducted to determine environmental sensitivities associated with the proposed project.</p>
National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004) (NEMAQA)	<p>The proposed project will not require an atmospheric emission licence (AEL) in terms of Listed Activities and Associated Minimum Emission Standards Identified in terms of Section 21 of the NEMAQA. However, the NEMAQA makes provision for the setting and formulation of national ambient air quality and emission standards upon which the air quality impact assessment for the project will be based.</p>
GN R.921, published under the National Environmental Management Waste Act, 2008 (Act 59 of 2008) (as amended) (NEMWA), as amended by GN R.633	<p>An application for a WML for the proposed discard facility is being applied for. See Table 4 for the relevant waste management activity that is triggered.</p>
GN R. 632 of 2015, as amended in 2018, published under the NEMWA	<p>The design of the pollution control barrier system for the proposed discard facility will be based on the risk based approach, as outlined in the Regulation GN R. 632. This approach is driven by a risk assessment based upon the geochemical hazard and toxicology of the waste material and the risk of the water resource and other receptors.</p>
National Water Act, 1998 (Act 36 of 1998)	<p>An application for a water use licence (WUL) in terms of Section 21(g) of the NWA is being applied for the proposed discard facility.</p>

Applicable Legislation and Guidelines used to compile the Report	How will this Development comply with and respond to the Legislation and Policy Context
Regulations GN R. 704 of 04 June 1999, published under the NWA	An application is also being submitted for exemption from the requirements of Regulation 4(a), (b) and (c) of Government Notice 704 of 04 June 1999, for in-pit discard disposal. The conceptual operational and post-closure storm water management plans will need to be developed to fulfil the requirements of GN 704.
Resource Quality Objectives (RQOs) and Water Quality Planning Limits (WQPL) have been gazetted for the Wilge River catchment.	Water quality limits for the project will be set based on the WQPL that have been gazetted for the Wilge River Catchment.
WHO Guidelines for Drinking Water Quality	Water quality limits contained in these guidelines will be set for this project, in the event of hydrocarbon contamination of surface water resources resulting from the project (earth-moving equipment).
Compliance with South African Water Quality Guidelines for Aquatic Ecosystems	Water quality limits contained in these guidelines will be set for this project, in the event that the project impacts on downstream wetlands.
SANS 10103 Code of Practice, Suburban Districts with Little Road Traffic	The noise impact assessment for the project will be conducted using the guidelines SANS 10103 Code of Practice, Suburban Districts with Little Road Traffic, and noise performance criteria set in terms of these guidelines.
National Heritage Resources Act, 1999 (Act 25 of 1999)	Although the proposed discard facility and discard conveyor will be located on disturbed land, an exemption from the requirements of this Act (to conduct a heritage impact assessment) may need to be compiled by a heritage specialist.
National Road Traffic Act, 1996 (Act 93 of 1996)	The construction of the proposed conveyor will need to be in compliance with the safety requirements of this Act and the Regulations published thereunder.

4.1 Natural Environmental Management Act

In terms of the NEMA, as amended (RSA, 1998a) and the EIA Regulations of 2014 (RSA, 2014e), an application for EA for certain listed activities must be submitted to the provincial environmental authority or the national authority, the Department of Environmental Affairs, depending on the types of activities.

The current EIA regulations of 2014 (RSA, 2014e), Listing Notice 1 of 2014 (RSA, 2014d), Listing Notice 2 of 2014 (RSA, 2014c) and Listing Notice 3 of 2014 (RSA, 2014b) promulgated in terms of Sections 24(5), 24M and 44 of the NEMA, and subsequent amendments, commenced on 04 December 2014 (RSA, 1998a).

Listing Notice 1 (RSA, 2014d) and Listing Notice 3 (RSA, 2014b) lists those activities for which a Basic Assessment process is required, while Listing Notice 2 (RSA, 2014c) lists the activities requiring a full Scoping and EIA process. The EIA Regulations of 2014 (GN R.326) (RSA, 2014e) define the processes that must be undertaken to apply for EA.

The Listed Activity triggered by the proposed discard facility project is indicated in Table 5.

4.2 National Environmental Management: Air Quality Act

The main objectives of the National Environmental Management: Air Quality Act (Act 39 of 2004) (NEM: AQA) are to protect the environment by providing reasonable legislative and other measures to (RSA, 2004):

- Prevent air pollution and ecological degradation;
- Promote conservation; and
- Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development in alignment with Sections 24a and 24b of the Constitution of the Republic of South Africa.

The NEMA: AQA has devolved the responsibility for air quality management from the national sphere of government to local spheres of government (district and local municipal authorities), who are tasked with baseline characterisation, management and operation of ambient monitoring networks, licensing of listed activities, and development of emissions reduction strategies.

The NEMA: AQA makes provision for the setting and formulation of national ambient air quality and emission standards. If the need arises, these standards can be set more stringently on a provincial and local level.

The proposed project will not require an atmospheric emission licence (AEL) in terms of Listed Activities and Associated Minimum Emission Standards Identified in terms of Section 21 of the National Environmental Management: Air Quality Act 39 of 2004 (RSA, 2004).

4.3 National Environmental Management: Waste Act

The National Environmental Management: Waste Act, 2008 (Act 59 of 2008) (NEMWA) was implemented on 01 July 2009 and section 20 of the Environment Conservation Act 73 of 1989, under which waste management was previously governed, was repealed. One of the main objectives of the NEMWA is to reform the law regulating waste management to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development and to provide for:

- National norms and standards for regulating the management of waste by all spheres of government;
- Specific waste management measures;
- The licensing and control of waste management activities;
- The remediation of contaminated land; to provide for the national waste information system; and
- Compliance and enforcement;

In terms of the NEMWA, certain waste management activities must be licensed and in terms of Section 44 of the Act, the licensing procedure must be integrated with an environmental impact assessment process in accordance with the EIA Regulations promulgated in terms of the NEMA.

Government Notice (GN) 921, published in the Government Gazette No. 37083 on 29 November 2013 (as amended), lists the waste management activities that require licensing. A distinction is made between Category A waste management activities, which require a Basic Assessment, Category B activities, which require a full EIA (Scoping followed by Impact Assessment) and Category C activities that require compliance with relevant requirements or standards determined by the Minister. The list of waste management activities was subsequently amended by GN R.633 in 2015, to include mining related waste / mineral residue.

Since the proposed project entails the development of a discard facility, which defines as a residue deposit in terms of GN R. 633, the following waste management activity will be triggered:

- 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).

This activity requires an application for a WML supported by a Scoping and EIA process, undertaken in accordance with the EIA Regulations GN R.326 of 4 December 2014.

4.4 National Water Act

The National Water Act (Act 36 of 1998) (NWA) is the primary legislation regulating both the use of water and the pollution of water resources (RSA, National Water Act 36 of 1998, as amended, 1998b). It is applied and enforced by the Department of Water and Sanitation (DWS).

Section 19 of the NWA regulates pollution, which is defined as “*the direct or indirect alteration of the physical, chemical or biological properties of a water resource to make it:*

- *Less fit for any beneficial purpose for which it may reasonably be expected to be used; or*
- *Harmful or potentially harmful to -*
 - *The welfare, health or safety of human beings;*
 - *Any aquatic or non-aquatic organisms;*
 - *The resource quality; or*
 - *Property.”*

The persons held responsible for taking measures to prevent pollution from occurring, recurring or continuing include persons who own, control, occupy or use the land. This obligation or duty of care is initiated where there is any activity or process performed on the land (either presently or in the past) or any other situation which could lead or has led to the pollution of water.

The following measures are prescribed in the section 19(2) of the NWA to prevent pollution:

- Cease, modify or control any act or process causing the pollution;
- Comply with any prescribed standard or management practice;
- Contain or prevent the movement of pollutants;
- Eliminate any source of the pollution;

- Remedy the effects of pollution;
- Remedy the effects of any disturbance to the bed or banks of a watercourse;

The NWA states in Section 22(1) that a person may only use water;

- Without a licence –
 - if that water use is permissible under Schedule 1;
 - if that water use is permissible as a continuation of an existing lawful use; or
 - if that water use is permissible in terms of a general authorisation issued under section 39.
- If the water use is authorised by a licence under this Act; or
- If the responsible authority has dispensed with a licence requirement under subsection (3).

Water use is defined in Section 21 of the NWA (RSA, 1998a).

Water Use Licence Application

The proposed discard facility is regarded as a Section 21(g) water use, which is defined as “*disposing of waste in a manner which may detrimentally impact on a water resource*”. An application for a water use licence (WUL) will be submitted to the DWS. An application will also be submitted for exemption from the requirements of Regulation 4(a), (b) and (c) of Government Notice 704 of 04 June 1999, for in-pit discard disposal.

4.5 Other applicable legislation

- National Heritage Resources Act, 1999 (Act 25 of 1999); and
- National Road Traffic Act, 1996 (Act 93 of 1996).

5.0 NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES

Based on current production rates the current discard dump (at Klipspruit Colliery) being used for the disposal of discard from Zibulo Colliery will run out of airspace in 2021. For the continuation of mining, an alternative discard placement option is required. One option is to include expansion of the existing facility at Klipspruit Colliery; another option is the risk mitigating proposal by AAIC to seek authorisation for an alternative coal discard disposal facility to be developed at the Zibulo Colliery opencast operation (i.e. this application).

The development of a discard dump at Zibulo Colliery will ensure continued contributions to the Gross Domestic Product (GDP) for South Africa due to the generation of export revenues, by processing the coal from Zibulo Colliery, as well as being able to maintain the employment complement for Zibulo Colliery and the PCPP.

The proposed discard facility has been assessed for need and desirability against the Department of Environmental Affairs’ Guideline on Need and Desirability (DEA, Guideline on Need and Desirability. Department of Environmental Affairs, 2017b).

Energy Needs in South Africa

Coal is currently the most important energy source in the world after oil. It is also one of the cheapest and most abundant energy carriers. Despite environmental concerns and legislation restricting the use of coal in electricity generation and industrial processes, coal continues to be an important energy source across the globe (Mines, 2018).

There is a growing demand for electricity and internationally, coal is the most widely used primary fuel. It is estimated that about 36 percent of the total fuel consumption for the world's electricity production is from coal. In South Africa, about 77 percent of the country's primary energy needs are provided by coal.

In addition to supplying the local economy, approximately 28 percent of South Africa's production is exported. The coal is exported mainly through the Richards Bay Coal Terminal, making South Africa the fourth-largest coal exporting country in the world.

Socio-economic Contributions to South Africa

The domestic and export markets for South African coal have developed over time, each with their own dynamics. In 2016, South Africa exported 28% (68.9Mt) of its coal by volume and sold 72% domestically. By value, exports were worth R50.5 billion (45% of the total) and domestic sales R61.5 billion (55%). The proposed activity will result in the job security for the current employees at Klipspruit. Expertise and products for this project will be sourced locally as far as possible and will also have a contributing factor to enhance the local economy.

In 2016, the coal industry employed 77 506 people, representing 17% of total employment in the mining sector. These employees earned R21 billion in wages and salaries. In the same year, the coal industry spent R60 billion on the procurement of goods and services, most of it locally. This contributed to creating and maintaining jobs in other industries. Indirectly, the coal industry created 173,093 jobs mainly in the transport and storage sector where almost 120 000 jobs were created representing 69% of all indirect jobs created by the coal industry. This highlights the importance of the coal sector in supporting the transport industry (Mines, 2018).

5.1 Period for which an environmental authorisation is required

It is estimated that the development of the discard facility at Zibulo Colliery will take place over a period of approximately 15 years. The dump will then be formally decommissioned and rehabilitated afterwards until the vegetation has been demonstrated to be self-sustaining and capable of maintaining the stability of the cover for roughly 10 years.

The mining operation is expected to continue for about 15 years and it is requested that this authorisation remain in effect for at least **25 years**.

6.0 PROCESS FOLLOWED TO IDENTIFY PREFERRED SITE

Alternatives are defined in terms of the NEMA, as “*different means of meeting the general purpose and requirements of the activity, which may include alternatives to –*

- (a) *the property on which or location where it is proposed to undertake the activity;*
- (b) *the type of activity to be undertaken;*
- (c) *the design or layout of the activity;*
- (d) *the technology to be used in the activity; and*
- (e) *the operational aspects of the activity.”*

The following sections describe the various alternatives that have been assessed as part of the proposed project.

6.1 Project alternatives

6.1.1 Discard facility options

The following discard facility options have been considered (Figure 5):

- Option 1: A greenfield site on land owned by AAIC:

The first option considered the availability of a greenfield site within reasonable proximity to the PCPP. This narrowed the area of interest to land at the site of the Zibulo Colliery opencast or underground operations.

While the opencast operation is close to the PCPP there is insufficient land available for development of a greenfield site as the property is constrained in its eastern extent by a wetland and drainage area, to the north by the N12 National highway and to the west by the R545 provincial road. The area to the south of the existing opencast contains additional coal reserves which form part of the pit life and which have been authorised for opencast mining. Consequently, there is no available greenfield site on non-mined land in the immediate proximity to the opencast operation.

The Zibulo underground operation is located approximately 18 km due south of the Zibulo opencast operations. While there is land available in proximity to the existing infrastructure, the distance over which coal discard would need to be transported for disposal is considerable. Notwithstanding this, the possibility of a greenfield site in proximity to the Zibulo underground operation was taken forward into the options analysis for further consideration.

- Option 2: A brownfield site within the footprint of the existing Zibulo Colliery opencast pit:

The second site option considered the disposal of coal discard onto a site contained within the footprint of the existing Zibulo opencast pit. Two options presented themselves, namely developing a discard facility on the surface of rehabilitated land or a scenario where discard disposal into available opencast void space would commence immediately, and develop into an aboveground discard facility extending over rehabilitated areas as well. These two options are represented schematically in Figure 6 and Figure 7 respectively. In summary:

- Option 2a: Placement of discard above the backfilled Zibulo pit only; and
- Option 2b: Placement of discard as backfill in the void and above the backfilled Zibulo pit.

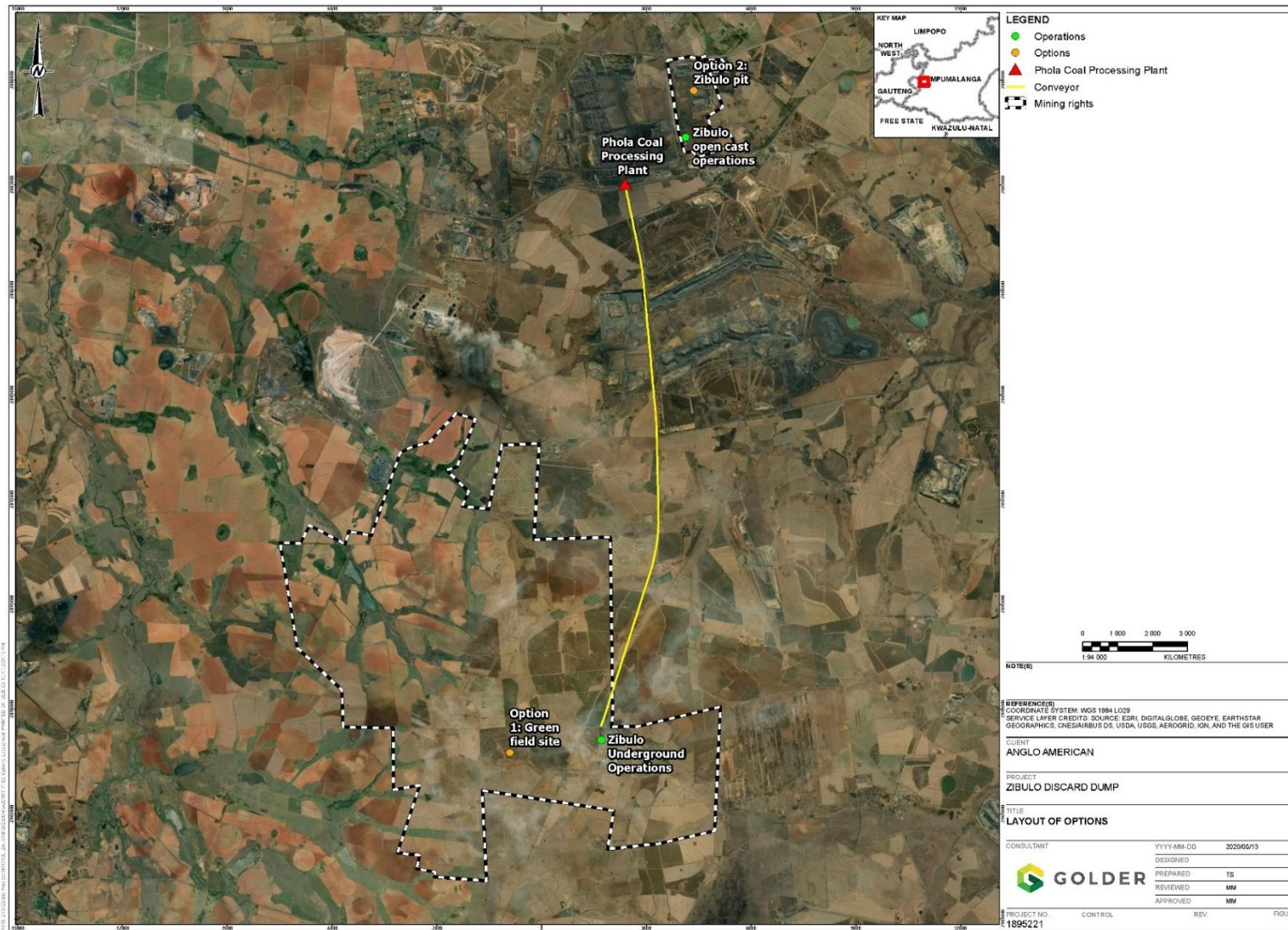


Figure 5: Alternative sites considered

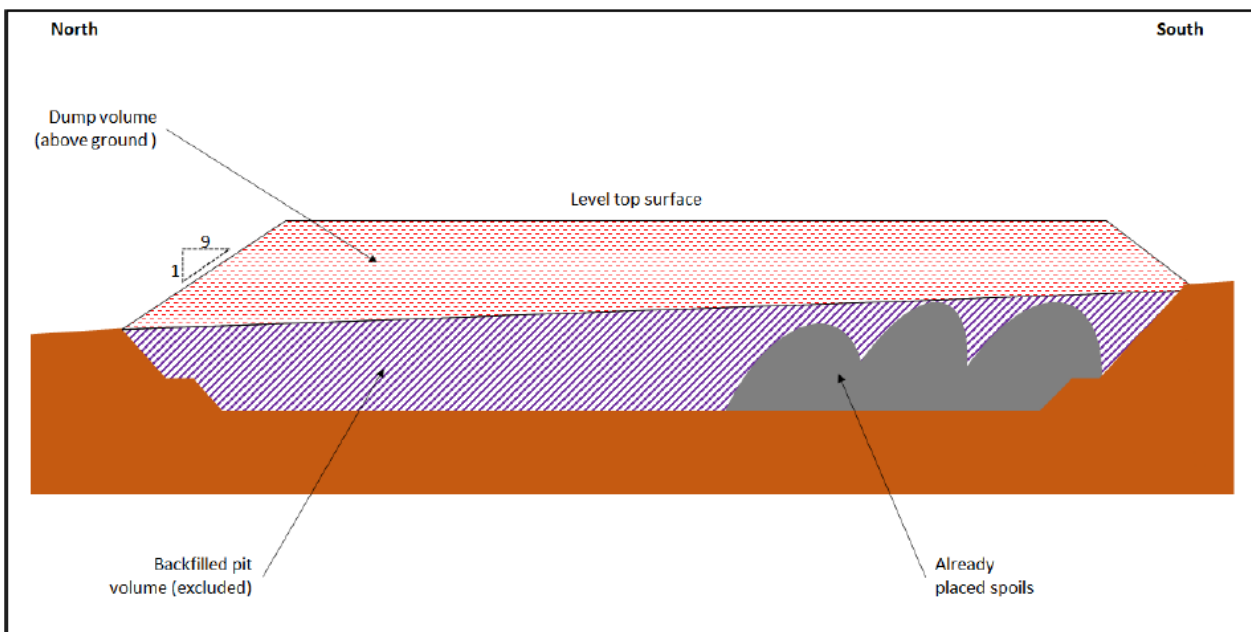


Figure 6: Option 2a schematic section showing discard placement on top of backfilled spoil

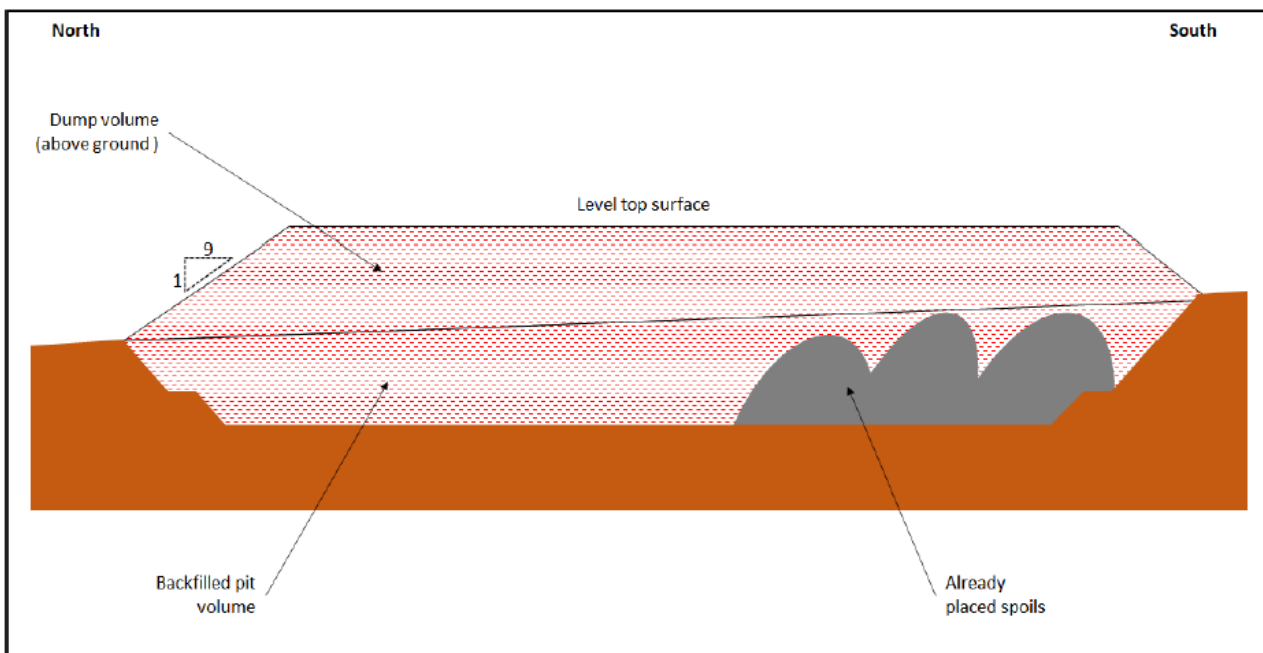


Figure 7: Option 2b schematic section showing discard placement as pit backfill and aboveground

A standard approach was followed in considering the three options (1, 2a and 2b). This entailed the evaluation of a suite of characteristics that relate to cost, engineering and technical aspects, environmental risk and/or benefit, social aspects and regulatory complexity, together with time considerations.

Evaluation was undertaken on the basis of expert opinion and options were qualitatively ranked and then a weighting was applied. The ranking system used is reflected in Table 7, and the weightings used are reflected in Table 8.

The options matrix is presented as Table 9.

Table 7: Scoring system for risk and impact ranking

Description	Scoring
Lowest negative risk/impact	1
Lower negative risk/impact	2
Medium risk/impact	3
Large negative risk/impact	4
Largest negative risk/impact	5

Table 8: Relative weightings

Aspect	Weighting
Economic	20
Engineering/ technical	30
Environmental	30
Social	10
Regulatory	10
Total	100

Table 9: Options matrix

	Option 1		Option 2a		Option 2b	
Description	Greenfield site located near the Zibulo underground operations		Placement of discard above the backfilled Zibulo pit		Placement of discard above the backfilled Zibulo pit and within void	
Aspect	Component	Score	Component	Score	Component	Score
Economic	Highest CAPEX as a new footprint needs to be prepared and lined with a geomembrane	5	Nominal CAPEX to prepare the dump footprint to allow for placement of discard. No barrier system foreseen for in-pit disposal as seepage would be contained inside the pit.	3	Nominal CAPEX to prepare the facility footprint to allow for placement of discard, but this can be offset by existing rehabilitation OPEX to the point that negligible CAPEX is required. No barrier system is foreseen for in-pit disposal as seepage would be contained inside the pit.	1
	CAPEX required to install a return conveyor line (i.e. north to south) adjacent to the existing south to north conveyor	5	Short length of conveyor required to connect the Phola Plant to the Zibulo pit	2	Short length of conveyor required to connect the PCPP to the Zibulo pit	2
	High OPEX operating the additional conveyor line	4	Much lower OPEX due to shorter conveyor line	1	Much lower OPEX due to shorter conveyor line	1
	OPEX required for additional water treatment due to new site	4	Negligible additional OPEX as treatment system is existing.	1	Negligible additional OPEX as treatment system is existing.	1
	Largest closure cost provision due to new standalone facility	4	Lower closure provision as the discard forms part of the existing disturbed pit area	2	Lower closure provision as the discard forms part of the existing disturbed pit area	2
Score		22		9		7
Weighted Score		4.4		1.8		1.4
Engineering/technical	Possible footprint constraints	3	Adequate available airspace	1	Adequate available airspace	1

	Option 1		Option 2a		Option 2b	
Description	Greenfield site located near the Zibulo underground operations		Placement of discard above the backfilled Zibulo pit		Placement of discard above the backfilled Zibulo pit and within void	
Aspect	Component	Score	Component	Score	Component	Score
	High level of QA/QC required for the installation of the geomembrane system.	3	No geomembrane foreseen	1	No geomembrane foreseen	1
	Probable need for new PCD, water treatment and new stormwater management system	3	Possible to use existing stormwater management system	1	Possible to use existing stormwater management system	1
	More precise engineering design approach is possible	1	Unknown uncertainties due to variable nature of backfilled overburden	3	Unknown uncertainties due to variable nature of backfilled overburden	3
Score		10		6		6
Weighted Score		2.5		1.5		1.5
Environmental	New facility will have a significant impact in the sterilisation of a greenfield footprint area	5	Brown fields facility will have a zero impact in the sterilisation of new footprint areas	1	Brown fields facility will have a zero impact in the sterilisation of new footprint areas	1
	Lower risk of spontaneous combustion due to careful management of discard placement and application of cover	2	Lower risk of spontaneous combustion due to careful management of discard placement and application of cover	2	Lower risk of spontaneous combustion due to careful management of discard placement and application of cover	2
	A new facility will increase the risk of groundwater and surface water pollution during operations which will have to be mitigated	4	The proposed facility will be developed on an area where the ground water and surface water has been impacted. These additional impacts however not to a significantly higher risk	2	The proposed facility will be developed on an area where the ground water and surface water has been impacted. These additional impacts however not to a significantly higher risk	2
	Risk of disturbing wetlands	3	No wetland disturbance on brownfields site	1	No wetland disturbance on brownfields site	1

	Option 1		Option 2a		Option 2b	
Description	Greenfield site located near the Zibulo underground operations		Placement of discard above the backfilled Zibulo pit		Placement of discard above the backfilled Zibulo pit and within void	
Aspect	Component	Score	Component	Score	Component	Score
Score		14		6		6
Weighted Score		3.5		1.5		1.5
Social	Largest social impact in terms of social acceptance	5	Lower social impact and hence more likely to accept the facility	3	Lower social impact and hence more likely to accept the facility	3
	Significant visual interference	5	The new facility will blend in with already disturbed mining area landform and therefore lower visual interference	3	The new facility will blend in with already disturbed mining area landform and therefore lower visual interference	3
Score		10		6		6
Weighted Score		1.0		0.6		0.6
Regulatory	A rigorous permitting process associated with a new greenfield site	3	Less rigorous permitting process associated with a brownfield site option	2	Less rigorous permitting process associated with a brown field site option	2
	The assumption is that no additional land will be required as the new facility will be developed on Zibulo land	1	No additional land required	1	No additional land required	1
Score		4		3		3
Weighted Score		0.4		0.3		0.3
Time frame	Timeline requirements to implement project will be significant	4	Shorter permitting timeframe. A phased implementation is feasible because the discard footprint expansion is slower than the rate of backfilling	2	Shorter permitting timeframe. A phased implementation is feasible because the discard footprint expansion is slower than the rate of backfilling	2
Score		4		2		2
Weighted Score		0.4		0.2		0.2

	Option 1		Option 2a		Option 2b	
Description	Greenfield site located near the Zibulo underground operations		Placement of discard above the backfilled Zibulo pit		Placement of discard above the backfilled Zibulo pit and within void	
Aspect	Component	Score	Component	Score	Component	Score
Total Score		64		32		30
Total Weighted Score		12.2		5.9		5.5

The summarised ranking based on Table 9 is included as Table 10 below.

Table 10: Ranking of options

Option No.	Option name	Weighted Score	Ranking
1	Greenfield site	12.2	3
2a	Placement of discard above the backfilled Zibulo pit	5.9	2
2b	Placement of discard above the backfilled Zibulo pit and within void	5.5	1

From the evaluation of alternatives in relation to site it is clear that the two options that relate to development of a discard facility within the footprint of the existing opencast mine are clearly the better option from both an engineering/technical, financial and environmental perspective. This is largely due to proximity and the fact that no new land take is required. Separation between the two options on the opencast pit (Option 2a or 2b) is not large in relation to their weighted scores; either of the two options can be selected.

Subsequent to undertaking the options assessment, Option 2b was selected as the option to be taken forward into the engineering design phase. This option was selected largely due to the materials balance for the site and commitments in the EMPr relating to a free-draining landscape (SRK Consulting, 2009).

6.2 Discard transport options

The movement of discard from the PCPP to the Zibulo opencast site requires careful consideration. Three alternatives were considered at a high level and will require some refinement as project planning progresses beyond a prefeasibility stage. For completeness, however, they are discussed in this section and presented in Figure 8.

As mentioned previously the PCPP is a shared facility between AAIC and South32. This facility lies to the west of the provincial road R545 while the Zibulo opencast operation lies to the immediate east of the road. Furthermore, the R555 runs to the immediate south of the PCPP; it is developed on its northern side through to the junction with the R545. In Figure 8, the PCPP property boundary is indicated as a brown polygon and the position of the Zibulo Opencast pit is indicated in grey. One important additional site is highlighted in purple immediately north-east of the junction between the R545 and R555; this is the position of the local grain silo which attracts considerable traffic during the crop season with noticeable congestion of agricultural trucks and tractor wagon combinations entering and leaving the silo during harvest.

The three transport alternatives considered are indicated and discussed below.

6.2.1 New build conveyor between Phola Plant and Zibulo opencast

There is an existing conveyor linking the South32 Klipspruit extension project to the PCPP. This conveyor alignment is indicated in green in Figure 8. It includes a bridge crossing of the R545 and a point immediately north of the grain silo.

The proposal would be to develop a dedicated conveyor (indicated in red in Figure 8) that would follow the alignment of the existing conveyor. The proposed new conveyor would lie to the immediate north of the existing conveyor and cross the R545 on a dedicated bridge crossing. Soon after the crossing of the R545, the conveyor would then run north to the opencast pit for final disposal. Should there be any limitation through either time to commission or mechanical failure at any point in time the discards transport alternative to be considered as a backup would be to transport discard via mine roads limiting public contact with such vehicles to the existing crossing point of the R545 (see Section 6.2.2 below).

The advantages of the proposed conveyor are that it is confined to mine property belonging to either South 32 or AAIC. In addition, the recent development of the incoming Klipspruit extension conveyor creates opportunity for infrastructure alignment, with minimal disruption to either mining operation. Some optimisation in engineering will be required as the project advances beyond prefeasibility to address the transfer point on the western side of the R545 as space is reasonably constrained between the existing conveyor (green) and Klipspruit extension access road lying to its immediate north.

6.2.2 Mine road between PCPP and Zibulo opencast operation

It is important to note that there is a reinforced road crossing at a point immediately to the north of the Klipspruit conveyor crossing of the R545. There is an established four-way intersection as this is the entrance to the extension project and allows transport across the R545 directly onto Klipspruit Colliery. This presents an opportunity.

Consequently, there is the potential to truck coal discard from the PCPP across the property of South32's Klipspruit Colliery to the existing crossing of the R545 and thereafter to deviate to the north-east onto the Zibulo property following an existing road to the south-western point of the opencast pit. Some optimisation of this route on the Zibulo property would be needed with time as a portion of the existing road would be lost as the opencast mine expands to the south. However, that is not deemed material to the consideration of this alternative as a potential route because the access road (yellow line east of R545) that will be affected by the mine will need to be relocated in any event as part of the Zibulo opencast expansion and consequently would continue to be available in its new position on the mine property for discard haulage.

The disadvantage of this option is that it will necessitate a long-term haulage across the property of a neighbouring mining house with associated complexities in relation to transportation and safety. It also has the disadvantage of necessitating regular crossing of the R545 with associated accident risk. Importantly, there is considerable congestion on the R545 during the crop season as agricultural vehicles (trucks and tractors and trailers) bringing grain to the existing silos. Queues of vehicles commonly form at the entrance to the grain silo rendering this portion of road highly congested during parts of the year.

6.2.3 Public road use

There is potential to make use of the existing public road network to transport discard from the PCPP to the opencast site. The route is indicated in white in Figure 8. It would exit the PCPP site at an existing exit and vehicles hauling discard to Zibulo opencast would move in an easterly direction on the existing R555 past the entrance to South32 Klipspruit Colliery to the junction between the R555 and R545. At this point trucks approaching the mine would turn to the north onto the R545 and access the opencast immediately adjacent to the pit at an entrance yet to be created. There is a short term alternative that could present itself which would see trucks turning onto the mine property to follow the mine road indicated in yellow.

There are a number of significant constraints associated with use of the public road network and these include the developed nature of the R555 between the possible entry point at PCPP and the junction with the R545. The junction itself is congested with considerable coal product haulage already taking place. Most importantly, during the cropping season the R545 is extremely congested as agricultural transport enters and exits the grain silos. In particular, it must be noted that this transport includes tractor drawn grain wagons which move at a slow pace on the roads.

This alternative is not favoured nor considered practical given the existing road constraints.



Figure 8: Map indicating conceptual alignment of proposed discard transport alternatives. A public road route in white, a proposed mine road crossing the South32 property in yellow and proposed new conveyor route in red. The alignment of an existing coal conveyor is indicated in green.

6.2.4 Preferred option

Mainly due to the congested nature of the existing roads, a dedicated conveyor to transport discard from the PCPP to the Zibulo opencast operation is deemed to be the preferred transport option.

6.3 No project option

The current planned LOM for the authorised mining activities at Zibulo Colliery is 2035.

The no project option for this project is not to develop a dedicated discard facility at Zibulo Colliery. The option of not going ahead with this project could potentially leave the mine with no discard disposal capacity beyond 2021 (when the current discard facility at Klipspruit Colliery reaches full capacity), which would ultimately affect production.

If mining operations at Zibulo Colliery are forced to stop prematurely due to waste facilities exceeding their capacity to store discard waste from the mine, the coal reserves will be left unmined and the economic benefits to AAIC and its employees, as well as the associated socio-economic benefits to the local communities and businesses, and South Africa as a whole would not materialise.

7.0 PUBLIC PARTICIPATION

This section provides an overview of the public participation process that will be undertaken during the scoping phase of the EIA.

7.1 Objectives of public participation

The public participation process is designed to provide information to and receive feedback from interested and affected parties (I&APs) throughout the EIA process, thus providing organisations and individuals and other stakeholders with an opportunity to raise concerns and provide comments and suggestions regarding the proposed project. By being part of the assessment process, stakeholders will have the opportunity to influence the Plan of Study of the EIA.

Opportunities for Comment

Documents are made available at various stages during the EIA process to provide stakeholders with information, further opportunities to identify issues of concern and suggestions for enhanced benefits, and to verify that the issues raised have been considered.

The principles that determine communication with society at large are included in the principles of the NEMA (Act 107 of 1998, as amended) and are elaborated upon in General Notice 657, titled “Guideline 4: Public Participation” (Department of Environmental Affairs and Tourism, 19 May, 2006), which states that: “*Public participation process means a process in which potential I&APs are given an opportunity to comment on, or raise issues relevant to, specific matters.*”

Public participation is an essential and regulatory requirement for an EIA process and will be undertaken in terms of Chapter 6 of the EIA Regulations GN R.326. Public participation is a process that is intended to lead to a joint effort by stakeholders, technical specialists, the authorities and the proponent/developer who work together to produce better decisions than if they had acted independently.

The public participation process is designed to provide sufficient and accessible information to I&APs in an objective manner and:

During the scoping phase to enable them to:

- Understand the context of the EIA;
- Become informed and educated about the proposed project and its potential impacts;
- Raise issues of concern and suggestions for enhanced benefits;
- Verify that their comments, issues of concern and suggestions have been recorded;
- Assist in identifying reasonable alternatives; and
- Contribute relevant local information and traditional knowledge to the environmental assessment.

During the impact assessment phase to assist them to:

- Contribute relevant information and local and traditional knowledge to the environmental assessment;
- Verify that their issues and suggestions have been evaluated and considered in the environmental investigations and feedback has been provided;
- Comment on the findings of the EIA; and
- Identify further issues of concern from the findings of the EIA.

During the decision-making phase:

- To advise I&APs of the outcome, i.e. the authority decision, and how the decision can be appealed.

7.2 Pre-scoping phase capacity building

Zibulo Colliery is an existing operation which has been in operation for almost a decade. Apart from the fact that landowners and residents in the area have been exposed to mining developments in the area for years, AAIC holds regular meetings with adjacent landowners and affected communities. During these meetings, the various mining processes and associated impacts are discussed, and progress feedback is provided.

Furthermore, a Focus Group Meeting was convened on 18 September 2020 for the local farmers in the area. The key purpose of the meeting was to share information about the proposed project and WML, EA and WUL application processes; and for I&APs to ask questions, raise issues of concern, contribute comments and suggestions for enhanced benefits.

The meeting invitation letter, presentation and attendance register are appended in APPENDIX F.

7.2.1 Identification of I&APs

I&APs were initially identified through a process of networking and referral, obtaining information from Zibulo Colliery's existing stakeholder database, and liaison with potentially affected parties near the project area. The I&AP database for the project is appended in APPENDIX B.

7.2.2 Registration of I&APs

The NEMA Regulations distinguish between I&APs and *registered* I&APs.

I&APs, as contemplated in Section 24(4) (d) of the NEMA include: “(a) any person, group of persons or organisation interested in or affected by an activity; and (b) any organ of state that may have jurisdiction over any aspect of the activity”.

In terms of the Regulations:

“An EAP managing an application must open and maintain a register which contains the names, contact details and addresses of:

- (a) All persons who; have submitted written comments or attended meetings with the applicant or EAP;
- (b) All persons who; have requested the applicant or EAP managing the application, in writing, for their names to be placed on the register; and
- (c) All organs of state which have jurisdiction in respect of the activity to which the application relates.”

As per the EIA Regulations, future consultation during the impact assessment phase will take place with **registered I&APs**. Stakeholders who were involved in the initial consultation and who attend the focus group meetings during the scoping phase will be added to the register. The I&AP register will be updated throughout the EIA process.

7.3 Public participation during scoping

This section provides a summary of the public participation process that will be followed during the scoping phase of the EIA.

7.3.1 Project announcement

The proposed project will be announced on Friday, **30 October 2020**. Stakeholders will be invited to participate in the EIA and public participation process and to pass on the information to friends/colleagues/neighbours who may be interested and to register as I&APs.

Please register as an I&AP

Stakeholders are encouraged to register as I&APs and participate in the consultation processes by completing the Registration and Comment sheet and returning it to the Public Participation Office. The Registration and Comment Sheet can also be completed on-line via Golder's website: www.golder.com/public. Contact details are provided on page ii of this report.

The proposed project will be announced as follows:

- Distribution of the background information document and a letter of invitation to participate to all I&APs on the database, accompanied by a registration, comment and reply sheet that was mailed/emailed to the entire stakeholder database. Copies of the announcement documents are attached in;
- The above-mentioned documents will be available at the public places listed on page (ii) of this report and posted to the Golder website www.golder.com/public;
- A newspaper advertisement will be published in the Witbank News, on **30 October 2020**; and
- Site notices will be placed at the entrance to the proposed project site and at visible places at the boundary of the property.

7.3.2 Draft scoping report

The draft scoping report (DSR) will be available for public review until **04 December 2020**. The report will be available at the public places listed on page (ii) of this report and posted to the Golder website www.golder.com/public.

Two additional focus group meetings will be convened during the scoping phase, which will comply with the National COVID-19 Regulations. Invitation letters will be sent out during the public review period.

7.3.3 Final scoping report

The DSR will be updated after the expiry of the public review period and submitted to the DMRE.

7.4 Public participation during the impact assessment phase

Public participation during the impact assessment phase of the EIA will entail a public review of the findings of the EIA, as presented in the EIA Report and Environmental Management Programme Report (EMPr), and the specialist studies.

7.4.1 Notification of interested and affected parties

All registered I&APs will be advised timeously and by e-mail, fax or telephone call of the availability of these reports, which they could either download from Golder's public website or request from Golder's Public Participation Office. They will be encouraged to comment either in writing (mail or e-mail) or by telephone. Ample notification of due dates will be provided.

7.4.2 Engagement process to be followed

A draft EIA report and EMPr will be compiled after completion of all the specialist studies. These reports will be made available for public comment for 30 days, during which the findings of the studies will be presented during a public meeting (which will comply with the National COVID-19 Regulations), to provide I&APs with an opportunity to engage with representatives of AAIC and the EIA team.

All the issues, comments and suggestions raised during the comment period on the draft EIA report/EMPr will be added to the comments and response report (CRR) that will accompany the Final EIA report/EMPr. The Final EIA Report/EMPr will be submitted to the DMRE, and the DWS.

On submission of the Final EIA Report/EMPr to the authorities, a personalised letter will be sent to every registered I&AP to inform them of the submission and the opportunity to request copies of the final reports.

7.4.3 Information to be provided to I&APs

In addition to all the information provided in this scoping report, the project description, the description of the baseline environment, the results of the specialist studies, impact assessment and recommended mitigation measures, will be provided to I&APs during the impact assessment phase.

7.5 Lead authority's decision

Once the DMRE has taken a decision about the proposed project, the Public Participation Office will immediately notify I&APs of this decision and of the opportunity to appeal. This notification will be provided as follows:

- A letter will be sent, personally addressed to all registered I&APs, summarising the authority's decision and explaining how to lodge an appeal should they wish to.

8.0 ENVIRONMENTAL ATTRIBUTES AND DESCRIPTION OF THE BASELINE RECEIVING ENVIRONMENT

The current, pre-project environmental characteristics of the project site are described in this section. The footprint area of the proposed discard facility has already been mined out and no pristine, unmined baseline environment exists within the proposed footprint area. Similarly, since the proposed discard conveyor will run along existing conveyor and road routes, the footprint associated with this facility is also disturbed.

The information elaborated upon in this section was partially sourced from the EMPs for the site, and various specialist studies conducted referenced in the text.

8.1 Geology

Zibulo Colliery falls within the Springs-Witbank Coalfield, that comprises of sediments of the coal-bearing Ecca Group of the Karoo Sequence, which were deposited on an undulating pre-Karoo floor which had a significant influence on the nature, distribution and thickness of many of the sedimentary formations, including the coal seams. Locally the general lithological profile, up to, and including the deepest mine-able coal seam, comprises of soft overburden overlying coal seams 5 (shallowest) to 1 (deepest) (Licebo Environmental and Mining (Pty) Ltd, 2018). Below the No 1 coal seam is the basement, comprising a diamictite of glacial origin (Licebo Environmental and Mining (Pty) Ltd, 2018).

The entire sequence has been extensively intruded by pre-Karoo dolerites (for the regional area). The Ogies dolerite dyke runs in an east-west orientation across the centre of the Zibulo opencast mining area (Licebo Environmental and Mining (Pty) Ltd, 2018). Two other dolerite dyke intrusions were identified on the eastern edge of the project area running in a north to south direction (Licebo Environmental and Mining (Pty) Ltd, 2018).

8.2 Topography

The Zibulo Colliery opencast operation is located on the northern side of the water shed between the Saalklapspruit and the Zaaivaterspruit. The area mostly comprises gently undulating Highveld terrain. The site has an elevation between 1520 and 1580 mamsl (Licebo Environmental and Mining (Pty) Ltd, 2018). The site drains into the Saalklapspruit to the east of the site (SRK Consulting, 2009).

8.3 Air quality

Zibulo Colliery and the surrounding areas fall within the Highveld Priority Area (HPA) and are therefore subject to its Air Quality Management Plan (AQMP) (DEA, 2015). This was put in place to help alleviate the large amounts of air pollution that the region was experiencing. Exceedances of fine particulate matter with an aerodynamic diameter ten microns (PM₁₀), Sulphur Dioxide (SO₂), Nitrogen Dioxide (NO₂) and Ozone (O₃) have often been recorded in the pollution hotspots of the eMalahleni, Kriel, Steve Tshwete, Ermelo, Secunda, Ekurhuleni, Lekwa, Balfour and Delmas areas (DEA, 2015). Despite the implementation of the HPA AQMP there continue to be exceedances in:

- PM₁₀ and fine particulate matter with an aerodynamic diameter 2.5 microns (PM_{2.5}) in particular, areas proximate to significant industrial operations as well as residential areas where domestic coal burning is occurring;
- SO₂ in eMalahleni, Middelburg, Secunda, Ermelo, Standerton, Balfour, and Komati due to a combination of emissions from the different industrial sectors, residential fuel burning, motor vehicle emissions, mining and cross-boundary transport of pollutants into the HPA adding to the base loading;
- NO₂ in the eMalahleni, Steve Tshwete and Ekurhuleni areas where anthropogenically induced and naturally occurring biomass fires occur throughout the HPA at all times of the year and contribute NO₂; and
- O₃ in Kendal, Witbank, Hendrina, Middelburg, Elandsfontein, Camden, Ermelo, Verkykkop and Balfour thought to be due to biomass burning.

Potential sources of air pollution within the vicinity of Zibulo Colliery have been identified to include:

- Agricultural activities;
- Biomass burning;
- Domestic fuel burning;
- Mining activities;
- Vehicle emissions (tailpipe and entrained emissions);
- Paved roads;
- Unpaved roads; and
- Power generation.

8.4 Noise

The noise in the area is largely characterized by the presence of mining and industrial activities. There are numerous roads crossing the area, which carry a large amount of traffic with a high percentage of heavy vehicles, especially those associated with the coal mining activities in the area (Licebo Environmental and Mining (Pty) Ltd, 2018). The N12 passes the northern border of the mine, and traffic on this highway is a major contributor to the ambient noise climate in the area (Licebo Environmental and Mining (Pty) Ltd, 2018). The countryside is characterised as gently undulating, thus the present topography is expected to provide little natural screening against noise propagated by the mine (Licebo Environmental and Mining (Pty) Ltd, 2018). Blasting at the opencast mining operations in the area result in some vibration (Licebo Environmental and Mining (Pty) Ltd, 2018).

8.5 Climate

The climate of the study area can be described as temperate, experiencing warm summers and cold winters with sharp frost. The mean daily maximum temperature is 25.8°C in January (midsummer) and 17.1°C in July (mid-winter). Average daily minimum temperature is 13.2°C in January and 0.2°C in July.

The rainy season in Ogies extends from October through to April when ±90% of the rainfall occurs. The humidity is low during the day and increasing slightly as the temperature cools at night. Rainfall peaks occur in December and January. During the dry winter months of June, July and August only ±3.5% of the rainfall occurs. The average annual precipitation is ± 720 mm while the average A-pan evaporation is 1730 mm, almost 2.5 times the annual rainfall.

Winds at Zibulo are predominantly from the northern and south-easterly sectors. Wind speeds are moderate, averaging ±3 to 5 m/s with a low percentage (±13%) of calm conditions (<1 m/s).

8.6 Visual

The potential visual receptors surrounding the site are the travellers along the N12 highway as well as the R545 that borders the site. The towns of Ogies and Phola are located approximately 2km and 5km respectively from the site.

8.7 Soils, land use and land capability

No undisturbed soils are associated with the proposed discard facility footprint. The footprint area has already been mined and backfilled with spoils. The adjacent land use is dominated by agricultural activities (mainly maize), mixed commercial and residential (Ogies Town) and mining activities (operational and defunct mines). SSF bunkers are present on the eastern side of the mining area (Licebo Environmental and Mining (Pty) Ltd, 2018). A cut flower operation using hothouses occurs to the south of the area.

8.8 Terrestrial ecology

Since the site is an active opencast mining area, the vegetation was removed when mining commenced. The natural habitat in the area is considerably transformed by mining and agriculture within the surrounding area. From a faunal point of view, there are no natural habitats within the Zibulo opencast mining area. The watercourse to the east of the site provides a habitat for mammals, amphibians, avifauna and reptiles to occur (Licebo Environmental and Mining (Pty) Ltd, 2018).

8.9 Wetlands

The following information has been extracted from a study conducted by Wetland Consulting Services in 2017 (Wetland Consulting Services, 2017).

The pre-mining extent of wetlands across the Zibulo Colliery opencast section's catchment area was approximately 62.67 ha and consisted of hillslope seepage wetland habitat. Due to recent opencast mining activities, a portion of this seepage wetland has been lost; the lost section of hillslope seepage wetland is identified as the relict wetland. Where the relict wetland area is shown in Figure 9, the extent shown is that delineated prior to loss of the wetland. Even prior to mining, the relict wetland system had been extensively transformed by the prior land use dominated by agricultural activities, did not offer a high level of ecological services to the landscape, and was of low ecological importance.

Presently, due to the progressive extent of mining activities on site, a section of the natural seepage wetland has been lost (relict wetland) and an artificial wetland has formed along the spoil stockpiles due to the fragmentation of the wetland system by mining activities on site and interruption of the natural flow patterns from the catchment. This artificial wetland forms a diversion of water along the stockpiles, which then discharges to the adjacent wetland within the Zibulo opencast mine. The current extent of wetland habitat on site (both natural and artificial) is shown in Figure 9.

The findings of the 2017 study indicated that (Wetland Consulting Services, 2017):

- The present ecological state (PES) of the wetlands on site range from Moderately Modified (PES Category C: middle seepage area) to Largely Modified (PES Category D: northern and southern seepage areas), to Critically Modified (PES Category F, relict wetland area); and
- The wetlands within the study area are considered to be of moderate (C) to low/marginal (D) ecological importance and sensitivity.

It is important to note that Zibulo Colliery has an approved wetland rehabilitation strategy, which entails the following :

- Rehabilitating northern and southern seepages areas; and

- Recreation and/or establishment of a watercourse through the mined out areas.

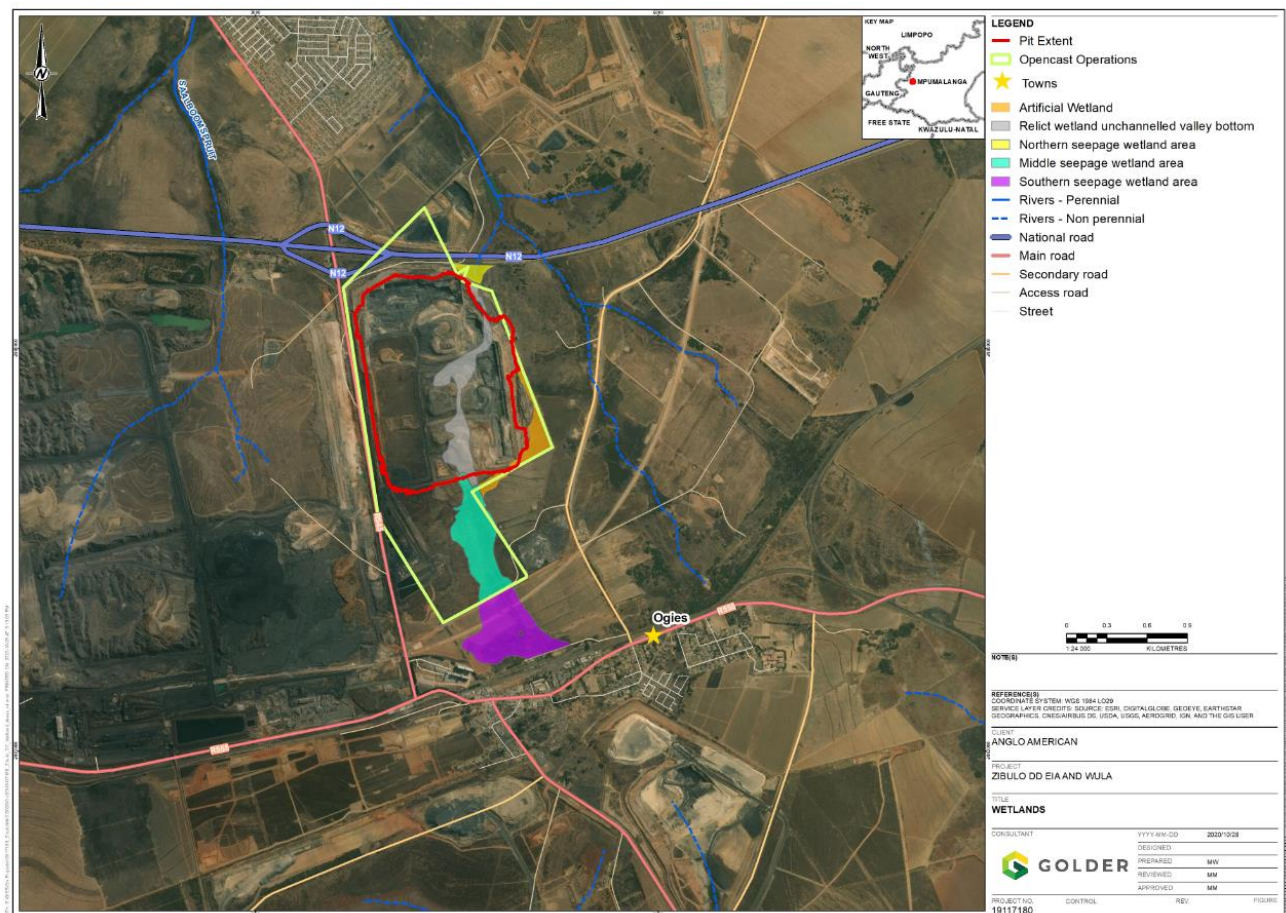


Figure 9: Remaining wetlands in the study area (Wetland Consulting Services, 2017)

8.10 Surface water

8.10.1 Regional hydrology

Zibulo Colliery falls under the Upper Olifants Catchment, Management Unit (MU) 20. The quaternary catchment in which the Colliery lies is B20G. Streams from the mining area drain to the Saalklapspruit which drains into the Wilge River which is a part of the Loskop Dam catchment. The Mean Annual Runoff (MAR) for Loskop Dam is $397 \times 10^6 \text{ m}^3$. The water downstream of the site is used primarily for agriculture and by the Phola residents for washing and laundry.

The Olifants Catchment covers about $54\,570 \text{ km}^2$ and is subdivided into 9 secondary catchments. The total MAR is approximately 2400 million cubic metres per year. The Olifants River and some of its tributaries, notably the Klein Olifants River, Elands River, Wilge River and Bronkhorstspuit, rise in the Highveld grasslands. The upper reaches of the Olifants River Catchment are characterised mainly by mining, agricultural and conservation activities. Over-grazing and highly erodible soils results in such severe erosion, in parts of the middle section, that after heavy rains the Olifants River has a red-brown color from all the suspended sediments.

Thirty large dams in the Olifants River Catchment include the Witbank Dam, Renosterkop Dam, Rust de Winter Dam, Blyderivierspoort Dam, Loskop Dam, Middelburg Dam, Ohrigstad Dam, Arabie Dam and the Phalaborwa Barrage. In addition, many smaller dams in this catchment, have a considerable combined capacity.

8.10.2 Reserve, Classification of the Resources and Resource Quality Objectives

The Reserve, Classification of the Resources and Resource Quality Objectives have been promulgated for the Upper Olifants Water Management Area (WMA) in which the proposed discard facility is located.

The Wilge River catchment has been classified as a Class II River and the Saalklapspruit as a Class III River in Government Gazette No 39943, 22 April 2016, Notice No 466, National Water Act, 1998 (Act 36 of 1998) Classes and Resource Quality Objectives of Water Resources for the Olifants Catchment (DWS, 2016b), where the classes are described as:

Class I	Minimally used
	Water resource is one which is minimally used, and the overall condition of that water resource is minimally altered from its pre-development condition
Class II	Moderately used
	Water resource is one which is moderately used, and the overall condition of that water resource is moderately altered from its pre-development condition
Class III	Heavily used
	Water resource is one which is heavily used, and the overall condition of that water resource is significantly altered from its pre-development condition

Resource Quality Objectives (RQOs) have been gazetted for the Wilge River catchment (DWS, 2016b).

While RQOs have been determined for the Upper Olifants catchment, the determination of Water Quality Planning Limits (WQPL) has also been undertaken to support the implementation of the RQOs (DWS, 2017). The setting of WQPLs ensures water quality planning at a more local level and ultimately to achieve the downstream RQOs. The Upper Olifants catchment was sub-divided into management units (MU), and the Wilge River falls into MU 22.

The water quality limits for the project will be set based on the WQPL that have been gazetted for the Wilge River Catchment.

8.10.3 Water quality

Surface water is monitored on a monthly basis at Zibulo Colliery. Monitoring of surface water quality for the downstream receiving environment monitoring localities, for the period January to December 2019, indicated the following (Aquatico, 2019) (see Figure 10 for surface water monitoring localities):

- On average, none of the monitoring localities exceeded the WQPL for pH (6.5 – 8.4) for the Saalklapspruit.
- The TDS levels at the localities immediately downstream of the Zibulo site, on the Saalklapspruit eastern tributary (ZC7 and ZC8), were below the WQPL (260 mg/L) for the Saalklapspruit, for the majority of the 2019 sampling period. The locality ZC01, further downstream of the Saalklapspruit, after the confluence of the eastern and western tributaries of the Saalklapspruit, did however, on average, exceed the WQPL. The contamination is likely as a result of runoff from human activities and other mining operations in the area, as there is no direct water link between these localities and the Zibulo opencast operation. This will be further investigated as part of the surface water and groundwater studies that will be undertaken during the impact assessment phase for the proposed discard facility project;

- On average, all the downstream monitoring localities recorded sulphate concentrations below the WQPL (400 mg/L) for the Saalklapspruit.
- The majority of localities were above the WQPL for manganese (0.02 mg/L) for the Saalklapspruit during 2019, but below the integrated water use licence (IWUL) limits set for the site (0.59 mg/l).
- Additionally, none of the downstream localities exceeded the calcium and magnesium WQPL (80 mg/L and 50 mg/L respectively) for the Saalklapspruit.

8.11 Groundwater

There are three different aquifer types which occur in the regional area, namely; shallow perched aquifers; shallow weathered zone Karoo aquifers and Deep Karoo aquifers. The aquifers within the opencast mining area have a moderate to low groundwater yielding potential (SRK Consulting, 2009).

The following information was sourced from a groundwater study conducted by Delta H in 2017 (H, 2017):

- The water table elevation in the shallow weathered aquifer at the Zibulo Colliery opencast section is around 1520 mamsl;
- Measurement results of groundwater levels for the opencast area indicate a near absence of seasonal water level fluctuations and their often asynchronous behaviour suggests an overriding impact of mine water management on water levels in the opencast area;
- Average LOM inflow is predicted to be 1.63 ML/d; and
- A decant rate of 0.63 ML/day is predicted for the post-closure phase, at north eastern edge of the pit, and likely to start at mine closure.

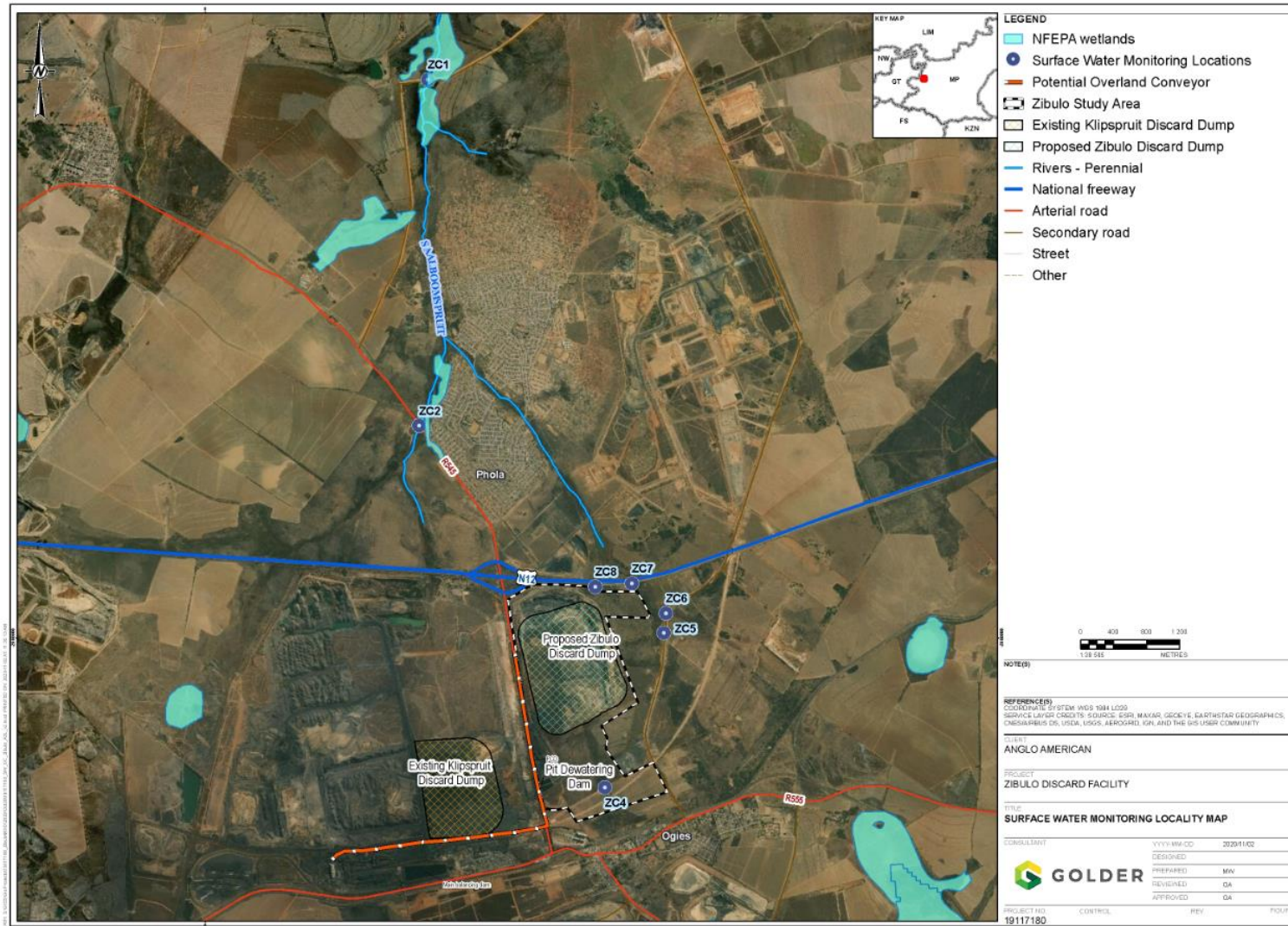


Figure 10: Surface water monitoring localities

Groundwater is monitored on a quarterly basis at Zibulo Colliery (see Figure 11 for the localities of the boreholes). The groundwater at Zibulo Colliery is classified as near neutral (pH in the range of 5.8 to 8.0) with generally low Total Dissolved Solids (TDS) contents, ranging from around 24 to 204 mg/l. Apart from borehole BSW04 located adjacent to the Pollution Control Dam (PCD), the samples are within the specified WUL limits. Zibulo Colliery is in the process of implementing measures at the PCD to address further contamination emanating from this facility.

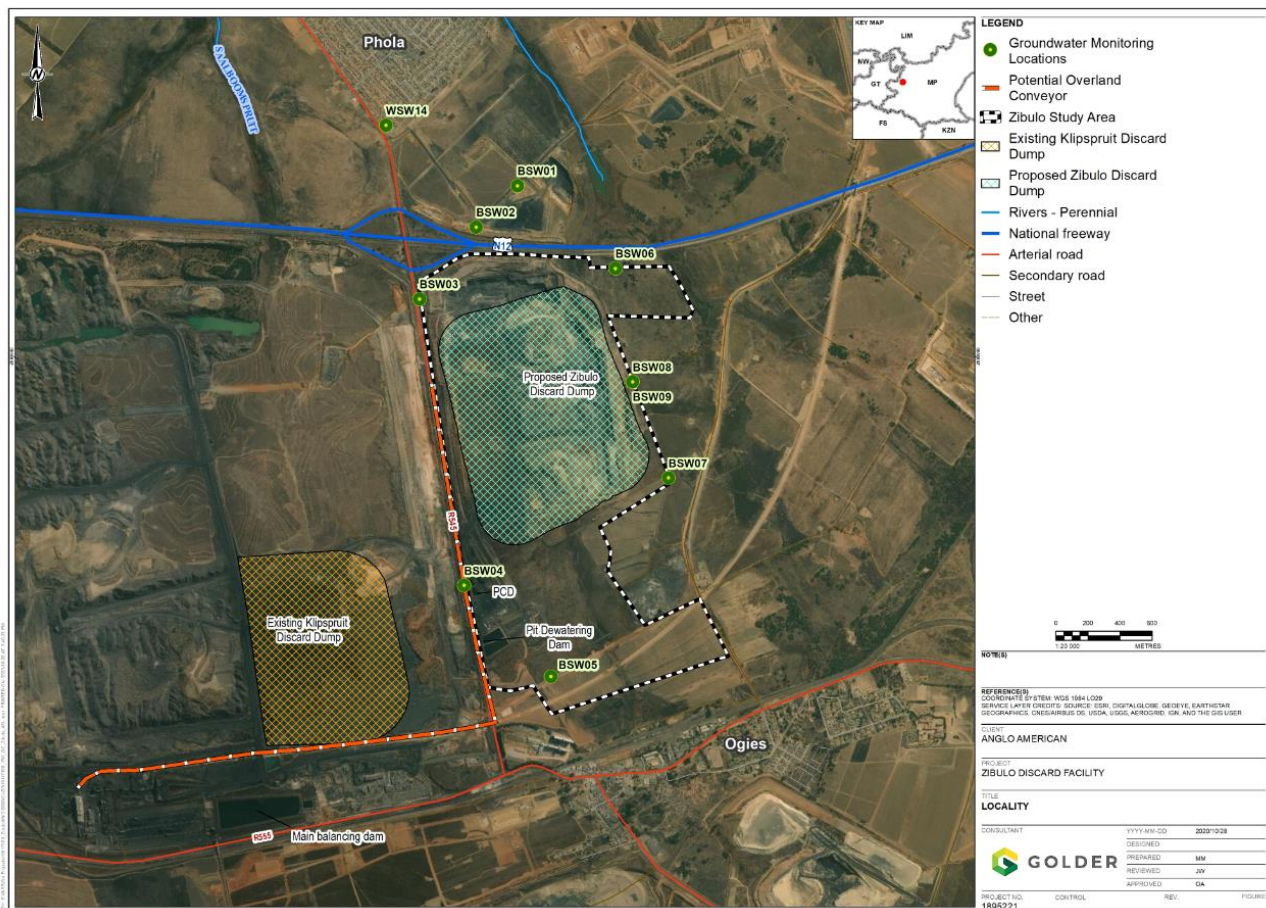


Figure 11: Groundwater monitoring localities

8.12 Socio-economic

Zibulo Colliery is located in the eMalahleni Local Municipality (ELM) in the jurisdictional area of Nkangala District Municipality (NDM). This section provides a summary of the social-economic environment of the ELM.

8.12.1 eMalahleni Local Municipality Geographical Location

The ELM is located to the North-west of the Mpumalanga Province, and it covers an area of about 2677.67 square kilometres. Some of the major towns and settlements near Zibulo Colliery include Phola and Ogies. This baseline only highlights the socio-economic conditions for the broader ELM because information pertaining to the towns and settlement is limited.

Governance Structure

Zibulo Colliery falls within Ward 30 of the eMalahleni demarcation board.

Population

ELM accounts for the largest population within the NDM, with an estimate of 455 228 people. Table 11 shows the population trends of ELM from 2011 to 2016 and the 2030 projected population. From 2011 to 2016, the population of ELM has increased by 3.2%.

Table 11: Population trends of ELM¹

Year	Population
2011 (Census)	395 466
2016 (Community Survey)	455 228
2030	707 530

Source: IDP 2017-2022

The increase in population in ELM might be due to the growth of mining industries and businesses around the area. The population growth has the following adverse impacts:

- Informal settlements and back rooms;
- Strain on water, sanitation, electricity, and roads resulting in quality and capacity problems; and
- Increase in unemployment, particularly amongst youth and unskilled, which might impact on issues of crime, prostitution, drug abuse.

The total number of households in ELM has increased over the years. In 2011, a total of 119 874 households were respectively reported in ELM. In 2016, the number of households has increased to 150 420 in ELM.

Gender and Age Distribution

The age and gender structure of the population is a key determination of population change and dynamics. The male gender in ELM constitutes approximately 53% of the total population, while the female gender constitutes 47%. This trend can often be observed in mining towns where the mining industry is predominantly male orientated. Most people in ELM (43.1%) are in the 15-34 age group.

Ethnicity and Language

The population distribution of the ELM composes of all racial groups, with over 65% of the population belong to the Black African group, and the most spoken language is Isizulu and Southern Ndebele. The dominant home language in the ELM is isiZulu (42.4%), followed by Afrikaans (14.6%), Sepedi (12.5%) and isiNdebele (10%)².

¹ Statistics South Africa 2016, *Community Survey 2016 Statistical Release*, 2016 <<https://doi.org/10.1017/CBO9781107415324.004>>.

² ELM, 'Final IDP Vision 2017/18- 2021/22'.

Education

Statistics South Africa Community Survey shows that the population in ELM aged 20+ completed grade 12, increased from 117 021 in 2011 to 146 952 (an increase of 29 931) in 2016, an increase of 25.6% in the relevant period.

Employment

In 2011, 138 548 people in ELM were employed either by the formal and informal sector. According to the 2016 HIS global insight figures the unemployment rate of ELM is 26.6%.

Apart from the formal and informal sector as the channels for sourcing income, other sources of income within the ELM include social services grants. In a growing economy among which production factors are increasing, most of the household incomes in NDM are spent on purchasing goods and services. Therefore, the measuring of the income and expenditure of households is a major indicator of economic trends.

Key Economic Activities

In 2015, the ELM contributed 20.9% to the Mpumalanga economy. From 1996 to 2015, ELM demonstrated an average annual economic growth of 2.4%. The sectors contributing to the economic activities in ELM, consequently contributing to the economy of NDM, are highlighted further in the next sections:

Agriculture

Agriculture in ELM is limited to low-level subsistence farming, producing enough maize for personal use, traditional livestock farming and sorghum production, which is formalised and produced for the market.³ Wool production is one of the upcoming sources of income in the area for emerging communal farmers.

Mining

Mining in ELM is a very significant economic sector, but it has also become a major spatial development constraint due to shallow undermining, especially in the central, northern, and southern portions of eMalahleni town.

Industries

There are various industrial areas in the ELM, most of which are situated within or around eMalahleni town.

Business Activities

The project area is close to the town of Ogies with the highest maize production in the Maize Triangle and hosts the AFGRI Co-operation. The Ogies station handles a substantial portion of the country's freight. The town also functions as a service centre to farmers, with a number of service industries and the co-operative focusing specifically on the agricultural sector. The township of Phola (meaning desert) is located north of Ogies, and there is a vast distance between these two settlements.

Kendal Power station which was completed between 1971 and 1982 and is currently the largest coal-fired power station in the world. The power station makes a significant contribution to the economy of Ogies and Phola and receives its coal from the adjacent Khuthala mine. Most of the residents of Ogies and Phola are employed at

³ Eastern Cape Socio-Economic Consultative Council, 'eMalahleni Local Municipality Socio Economic Review and Outlook, 2017', 2017, 1–102.

the power station and the mine. Undermining, however, poses constraints to the development of these settlements.

Ogies has developed in a linear pattern along two main roads, namely the P29-1 and adjacent railway line as well as the R545. The general maintenance of the public spaces (road reserves, open spaces, roads etc.) in the town is very poor and requires attention. eMalahleni CBD represents the largest concentration of business activity in ELM. The urban areas in ELM are mainly residential with supportive services such as business and social facilities.

Tourism

ELM is the point of entry into Mpumalanga from Gauteng.⁴ The province of Mpumalanga has unique scenery. It is also a home to many world-renowned attractions, including the famous Kruger Park and many others. Also, Mpumalanga is the only province of South Africa to border two provinces of Mozambique or to border all four districts of Swaziland. Unfortunately, tourism potential in the two municipalities is not fully exploited.

9.0 POTENTIAL IMPACTS IDENTIFIED

The following key potential impacts and risks associated with the development of the discard facility have been identified:

- Potential negative impact on ambient air quality as a result of increased nuisance dust and fine particulate levels, likely to occur as a result of materials handling activities (tipping, loading and offloading), vehicle entrainment of dust on unpaved roads, and wind erosion from open/ exposed areas;
- Spontaneous combustion on the discard facility resulting in:
 - Increased levels of fugitive emissions (i.e. air pollution) and non-compliance with the NEM: AQA when the ambient air quality standards are exceeded;
 - Increased occupational exposures to the combustion gasses;
 - Instability within the discard facility and an increased risk of collapses due to voids being formed as the discard burns within the facility; and
 - Increased risk of occupational injuries and/or losses of equipment due to burns, smoke inhalation, and/or collapse.
- Potential negative impact on visual aesthetics of the broader region, particularly since the discard facility will remain a permanent visible feature of the landscape;
- Potential negative impact on noise levels resulting from site preparation, ground excavation and materials handling activities;
- Potential negative impact on pit water quality due to the additional acid-generating discard that will be placed on top of the pit, and subsequent decant of mine affected water once mining and operational dewatering ceases and the pit fills up, impacting on downstream water resources (the Saalklapspruit);

⁴ Nkangala District Municipality IDP 2018-2019.

- Potential negative impact on the quality of downstream water resources resulting from spillage of contaminated storm water runoff emanating from the discard facility;
- Potential negative impact on pit water quality and acceptability for treatment at eWRP;
- Potential impact on volume of contaminated mine affected water requiring management/treatment;
- Potential negative impact on downstream aquatic ecosystems resulting from the above-mentioned impacts on water quality;
- Potential negative impact on the current wetland offset strategy for the site;
- Potential positive impact on employment safety of permanent employees, continued skills transfer, and local economic development; and
- Potential negative impact on water supply of local water users.

10.0 EIA PROCESS AND METHODOLOGY

The overall process and methodology that was followed for the scoping phase of the EIA was based on the requirements of South African legislation (specifically NEMA) and best practice standards and guidelines.

The approach included the following key stages:

- Gap Analysis of existing information against the project compliance criteria;
- Screening (legal and process review) – review of all applicable compliance criteria inclusive of South African legal and administrative requirements (see Section 4.0 above);
- EIA scoping (identification of key issues and development of a plan of study for carrying out the impact assessment). This report is presented to the public for comment and to the relevant government departments for a decision on whether the scope proposed for the EIA is appropriate;
- Environmental and social baseline information review – carrying out desktop assessment, and where required, field assessment, to review the existing baseline conditions of the environment that could be affected by the proposed project; and
- Stakeholder engagement – is being undertaken throughout the EIA process to record issues and comments received from the public. These issues and comments are integrated into the process and will be considered in the impact assessment phase of the EIA.

The following activities will be undertaken during the next phase of the EIA:

- Undertaking the following specialist studies:
 - Wetlands and aquatic ecology;
 - Hydrology assessment;
 - Hydrogeological assessment;
 - Waste characterisation and risk assessment;
 - Air quality and climate change assessment;
 - Visual assessment;

- Heritage;
- Socio-economic assessment; and
- Closure cost assessment.
- Preparation of an EIA report – documenting all processes and presenting the findings of the impact assessment. The EIA report will be presented to the public for comment and to the relevant government departments for a decision on whether the project may proceed, and if so, under what conditions;
- Stakeholder engagement – will continue throughout the remainder of the EIA process to record issues and comments received from I&APs. All issues and comments will be integrated into the process and considered during the EIA;
- The overarching principles that guide the EIA include:
 - Sustainability – development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs; and
 - Mitigation hierarchy – The mitigation hierarchy describes a stepwise approach that illustrates the preferred approach to mitigating adverse impacts as follows (the governing principle is to achieve no net loss and preferably a net positive impact on people and the environment as a result of the project):
 - The preferred mitigation measure is **avoidance**;
 - Then **minimisation**;
 - Then **rehabilitation or restoration**; and
 - Finally, **offsetting** residual, unavoidable impacts.
 - Duty of care towards the environment and affected people.

The assessment of the impacts of the proposed activities will be conducted within the context provided by these principles and objectives.

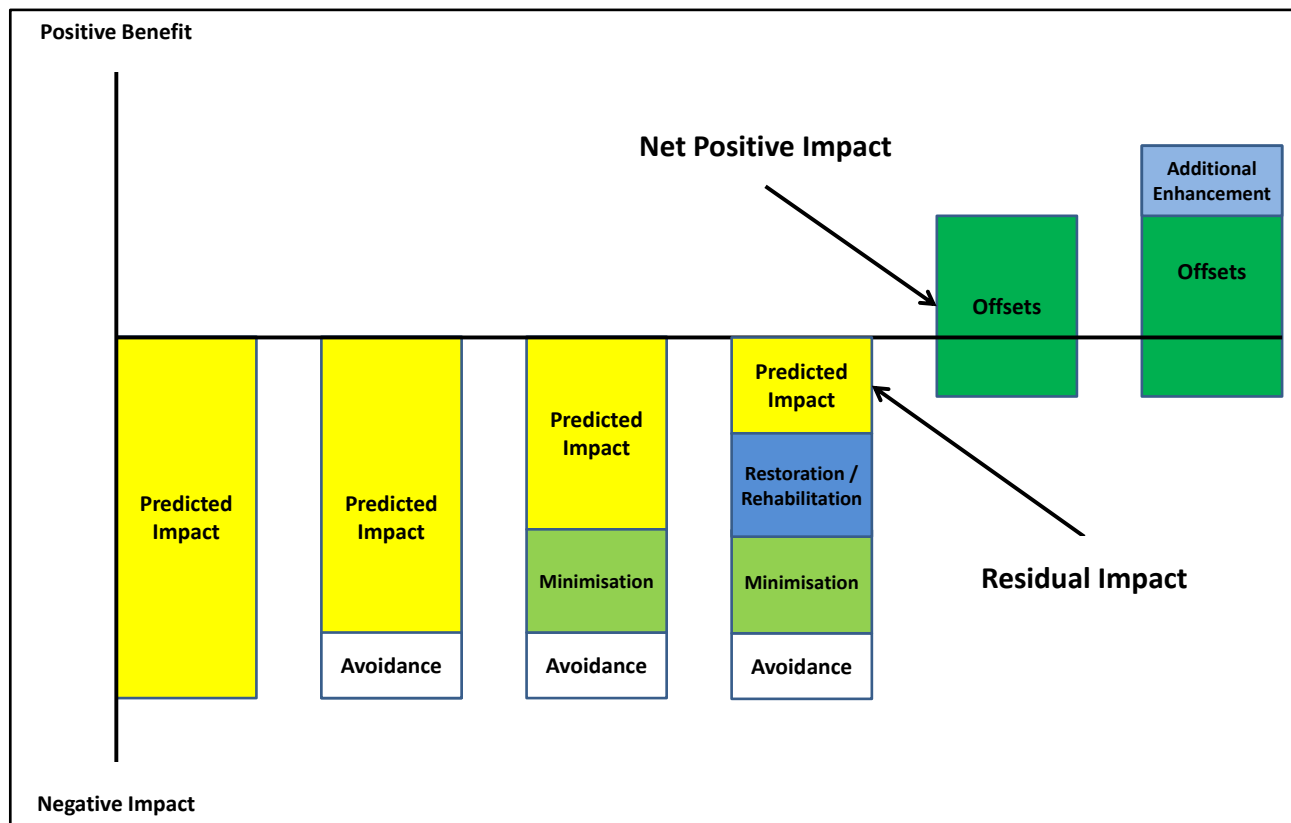


Figure 12: Mitigation Hierarchy Adapted from Biodiversity Offset Design Handbook, 2009

10.1 Scoping methodology

The methodology specifically adopted for the scoping phase includes the following:

- Stakeholder consultation as required in terms of the EIA Regulations;
- Review of existing data;
- Specialists team to identify key impacts and issues and to outline the plan of study; and
- Compiling the scoping report.

10.2 Assumptions and limitations

The EIA is limited to the scope of the assessment outlined in more detail in Section 11.0 of this document.

Although all effort was made by the project team to identify all environmental and social aspects, impacts and mitigation measures, errors and omissions may have occurred. The environmental management programme (EMPr) that will be developed as part of the EIA process will be a live document that must be adapted and updated as additional information, aspects or impacts are identified. An important objective of the EMPr is for the AAIC project team to continually improve environmental and social performance. Besides, according to South African legislation, the EMPr will need to be updated or amended with new information when there are significant changes during the life of the project.

Every effort was made to engage stakeholders to the extent possible, however not every stakeholder may have been consulted, or their comments may have been recorded erroneously. A grievance mechanism has been

put in place through which stakeholders can raise grievances and continue to contribute their concerns and issues with the project team.

More detail on the assumptions and limitations of the EIA will be provided once the impact assessment has been completed. These assumptions and limitations may relate to the accuracy of quantitative and qualitative impact assessment methods utilised.

10.3 Key authorities for the waste management licence application

The DMRE will be the decision-making authority for the EIA and the EMP, which is being undertaken in terms of the latest EIA Regulations. The DWS, MDARDLEA, SAHRA and SANRAL will be commenting authorities.

10.4 Positive and negative impacts of the initial site layout

The proposed project layout is indicated in Figure 2. The location of the proposed discard facility at Zibulo Colliery opencast section is the optimised locality for the transportation of the discard from PCPP to the disposal site. Furthermore, the selection of the opencast pit as the locality for the discard facility prevents the disturbance of a greenfield site. The proposed conveyor route from PCPP to Zibulo Colliery (as opposed to trucking) will prevent further contribution to the already congested roads in the area.

10.5 Possible mitigation measures and level of risk

The following issues and potential mitigation measures are being considered:

- **Air quality, noise and visual nuisance impact mitigation:**
 - Compact discard and implement concurrent rehabilitation;
 - If spontaneous combustion commonly occurs onsite, trace gas monitoring of the fugitive combustion emissions must be undertaken to determine the impact on the ambient air quality and compliance with the National Ambient Air Quality Standards (NAAQS);
 - Dust and fine particulate monitoring should be implemented to monitor compliance with NAAQS;
 - Implement concurrent rehabilitation of the discard dump to reduce the visual intrusion;
 - If noise levels associated with material handling activities are deemed as too high, mechanisms to reduce noise levels must be investigated;
 - Rigorous speed control to reduce the noise from vehicle traffic; and
 - Using the most appropriate equipment for the particular purpose.
- **Surface water impact mitigation:**
 - Utilising applicable erosion procedures;
 - Ensure adequate compaction of discard material and ensure that concurrent rehabilitation takes place;
 - Ensure that the storm water management plan associated with the proposed project is implemented and complies with Regulations GN704;
 - Clean up spillages immediately and dispose of contaminated materials;

- Application of soil cover as part of concurrent rehabilitation to reduce / limit recharge into the discard facilities;
 - Revegetate placed cover material as quickly as possible;
 - Manage the use of earth moving machinery in accordance with the mine's standard operating procedures;
 - Develop the facility in accordance with the design slopes; and
 - All vehicles and equipment should be checked and assessed for any fault or leaks before entering site;
 - Implement corrective measures identified in ongoing rehabilitation performance monitoring and assessment.
- **Wetland impact mitigation:**
- Manage above impacts on surface water;
 - Restrict development activities to the proposed development footprint only; and
 - Revisit wetland offset strategy, if required.
- **Groundwater impact mitigation:**
- Continue to abstract water from the pit and send to eWRP for treatment; and
 - Groundwater quality should continue to be monitored quarterly. Should it be identified that groundwater dependent/private users within the vicinity are impacted, it may be necessary to conduct a water supply options analysis and develop a supply strategy to meet the deficits.
- **Biodiversity impact mitigation:**
- Implement sediment and erosion control, and the maintenance thereof, as per the storm water management plan associated with the proposed project; and
 - Any changes in the biotic integrity of the Saalklapspruit should be investigated following the implementation of this proposed project.
- **Cultural and heritage impact mitigation:**
- Although the proposed activities will take place on areas that have previously been mined / disturbed, the possibility of affecting local cultural and heritage resources cannot be ruled out; and
 - Should any heritage resources be encountered, the appointed ECO should be contacted immediately, and construction on that area should cease until heritage sites are recovered or demarcated.
- **Socio-economics impact mitigation:**
- Include local employment and procurement targets in contract agreements; and
 - Implement possible nuisance mitigation measures listed above.

10.6 Site selection matrix and final site layout plan

Refer to Section 6.0.

10.7 Motivation for not considering alternative sites

Not applicable.

10.8 Statement motivating the preferred site

Refer to Section 6.0.

11.0 ENVIRONMENTAL IMPACT ASSESSMENT

The EIA process for this project has been designed to comply with the requirements of the EIA Regulations of 2014 (RSA, 2014e). Cognisance has also been taken of the following key principles contained in the NEMA, which is South Africa's framework environmental legislation:

- Sustainability – a development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs;
- Mitigation hierarchy – avoidance of environmental impact, or where this is not possible, minimising the impact and remediating the impact; and
- The duty of care of developers towards the environment.

The assessment of the impacts of AAIC's proposed activities on the properties listed in Table 3, above, will be conducted in accordance with these principles.

Based on the findings of the EIA, a comprehensive environmental management programme (EMPr) will be developed and implemented to control and minimise the impacts during construction, operation, and decommissioning of the proposed activities.

11.1 Plan of study for impact assessment

The impact assessment component of the EIA is subdivided into several specialist fields of study. The findings of the specialist studies will be integrated into the EIA report. The significance of the impacts will be assessed in terms of the methodology described in Section 11.3 of this report.

The terms of reference for the specialist investigations are set out below. The description is presented in general terms, but all the issues that need to be addressed by the studies are captured. Where applicable, the cumulative effects of this project on the existing impact experienced in the surrounding areas will be assessed.

11.1.1 Wetlands and aquatic ecology

The following approach will be followed for this study:

- Desk study of the wetlands to the east of the project footprint, incorporating features within 500m as well as the main drainage line crossing the N4 to the extent of the farm dam.
 - This assessment will include a desktop delineation of hydrogeomorphic (HGM) units and the PES.
- From an instream biota perspective, a desktop assessment of available information will be used to confirm the health of the river.

11.1.2 Hydrology assessment

A hydrology assessment will be undertaken as follows:

- A review of previous studies carried out for the site and a preparation of a gap analysis outlining the information required to assess the impacts associated with the selected options.
- The compilation of a map showing the catchment areas, mining and infrastructural areas and the major surface water drainage lines.
- A collection of available daily rainfall data to check for integrity.
- Rainfall statistics such as monthly averages, number of rain days per month, distribution of annual totals and the 2, 5, 10, 20, 50, 100- and 200-year recurrence interval 24-hour storm depths will be determined.
- The available climate data will be collected and reviewed to produce monthly potential evaporation and temperature statistics based on regional and local climatic data.
- The surface water resources in the study area will be mapped and described.
- The available flow records will be collected from the DWS's database. The available data will be analysed to characterise the flow regimes in the local streams.
- The surface water specialists will also take cognisance of Regulation 704 under the National Water Act (Act No. 36 of 1998) and provide recommendations for achieving compliance with the requirements of this regulation.
- The development of the storm water management plan for the proposed discard facility.
- The catchments will be associated with the separation channels and characterised according to geometry (area, slope), roughness and infiltration parameters. Permeable and non-permeable areas as well as interception storage will be accounted for.
- The sub-catchment characteristic and design rainfall will be used in rainfall-runoff modelling software to determine the catchment response in terms of peak runoff, and simultaneously determine channel sizes required to convey the peak flow resulting from the catchment response to precipitation.
- Channel hydraulics as well as water quality (contact or non-contact) will be considered to determine channel cross-sections as well as channel linings / materials of construction.
- A dynamic water balance will be prepared for the discard dump facility. The output of the water balance will support the design team in terms of storage capacities required, site water make-up requirements and inform the risk assessment in terms of potential environmental impacts arising from the facility.
- An operational and post closure water balance across the facility will be provided in terms of the Best Practice Guideline for water and salt balances.

11.1.3 Hydrogeological assessment

The proposed hydrogeological investigation scope of work is as follows:

- The existing hydrogeological model for the site will be used to provide the basic input to the hydrogeological assessment.
- Geochemical testing (Acid Rock Drainage / Metal Leaching) of Zibulo discard samples;

- The impacts of geochemical testing results on runoff and seepage quality will be determined as the source-term for the hydrogeological model; and
- Numerical and Transport model will be run to spatially determine the extents of a plume (uncapped and capped scenario's).

11.1.4 Waste characterisation and risk assessment

A waste characterisation and risk assessment will be conducted in terms of the Regulations Regarding the Planning and Management of Residue Stockpiles and Residue Deposits from a Prospecting, Mining, Exploration or Production Operation (GN R. 632 of 2015).

11.1.5 Air quality and climate change assessment

The scope of work is set out as follows:

- Identification of the key themes (i.e. project background, general baseline air quality, health impacts of specific pollutants, site location information, regional meteorology, available meteorological data, previous studies done in the project area and climatic conditions etc.);
- Analysis of site-specific meteorological data at the proposed site;
- Review of applicable air quality legislation, policies and standards;
- Identification of sensitive receptors, such as local communities, within the surrounding areas;
- Identification and discussion of the potential health effects associated with the atmospheric emissions from the proposed activities;
- Characterisation of the baseline air quality in the vicinity of the project;
- Establish an emissions inventory. For identified sources, emission rates will be used where available, otherwise the USEPA AP-42 or NPI documents will be consulted to obtain emission rates for the identified sources.
- Undertake dispersion simulations for the operational phase of the project only. The parameters to be modelled will be based on the key pollutants identified in the emissions inventory. These key pollutants are likely to include (but not limited to) particulate matter (PM10), total suspended solids (TSP), sulphur dioxide (SO₂), and nitrous oxides (NO_x) and Volatile Organic Compounds;
- The dispersion modelling results, and associated air quality impacts will be analysed and comparisons made with applicable standards/ guidelines; and
- Recommendations for mitigating, managing and monitoring the impact of air emissions will be made.

11.1.6 Visual assessment

A visual impact assessment study will be undertaken, taking specific account of the operational worst case view, based on Viewshed analyses, and how that would change once the selected rehabilitation/closure approach has been adopted.

11.1.7 Socio-economic assessment

A high-level socio-economic assessment will be conducted, drawing largely on the key issues raised during the stakeholder engagement process and outcomes of the specialist studies. The study will describe the benefit

that the project will bring to the operation from a cost and technical perspective, together with the effect that it may have in terms of life optimisation. Beyond that the regional social context will be described.

11.1.8 Closure cost assessment

This study will be a project level assessment and update to quantify the risk, liability and associated costing linked to the development of a discard facility on site. This will be handled in isolation of the overarching Zibulo mine site rehabilitation and closure plan and annual closure liability determination.

11.1.9 Heritage

Although the proposed discard facility and discard conveyor will be located on disturbed land, an exemption from the requirements of this Act (to conduct a heritage impact assessment) may need to be compiled by a heritage specialist.

11.2 Impact assessment methodology

The significance of identified impacts will be determined using the approach outlined below (terminology from the Department of Environmental Affairs and Tourism Guideline document on EIA Regulations, April 1998). This approach incorporates two aspects for assessing the potential significance of impacts, namely occurrence and severity, which are further subdivided as follows:

Occurrence		Severity	
Probability of occurrence	Duration of occurrence	Scale/extent of impact	Magnitude of impact

The following five ranking scales are used to assess the magnitude and duration of impacts:

Magnitude	Duration
10- Very high/unknown	5- Permanent (>10 years)
8- High	4- Long-term (7 - 10 years, impact ceases after site closure has been obtained)
6- Moderate	3- Medium-term (3 months- 7 years, impact ceases after the operational life of the activity)
4- Low	2- Short-term (0 - 3 months, impact ceases after the construction phase)
2- Minor	1- Immediate
Scale	Probability
5- International	5- Definite/Unknown
4- National	4- Highly Probable
3- Regional	3- Medium Probability
2- Local	2- Low Probability

Magnitude	Duration
1- Site Only	1- Improbable
0- None	0- None

Once these factors are ranked for each impact, the significance of the two aspects, occurrence and severity, is assessed using the following formula:

Significance Points= (Magnitude + Duration + Scale) x Probability.

The maximum value is 100 significance points (SP). The impact significance will then be rated as follows:

Points	Significance	Description
SP>60	High environmental significance	An impact which could influence the decision about whether or not to proceed with the project regardless of any possible mitigation.
SP 30 - 60	Moderate environmental significance	An impact or benefit which is sufficiently important to require management, and which could have an influence on the decision unless it is mitigated.
SP<30	Low environmental significance	Impacts with little real effect and which will not have an influence on or require modification of the project design.
+	Positive impact	An impact that is likely to result in positive consequences/effects.

For the methodology outlined above, the following definitions were used:

- Magnitude is a measure of the degree of change in a measurement or analysis (e.g., the area of pasture or the concentration of a metal in water compared to the water quality guideline value for the metal), and is classified as none/negligible, low, moderate or high. The categorisation of the impact magnitude may be based on a set of criteria (e.g. health risk levels, ecological concepts and professional judgement) pertinent to each of the discipline areas and key questions analysed. The specialist study must attempt to quantify the magnitude and outline the rationale used. Appropriate, widely recognised standards are to be used as a measure of the level of impact;
- Scale/Geographic extent refers to the area that could be affected by the impact and is classified as site, local, regional, national, or international;
- Duration refers to the length of time over which an environmental impact may occur i.e. immediate/transient, short-term (0 to 7 years), medium-term (8 to 15 years), long-term (greater than 15 years with impact ceasing after closure of the project), or permanent; and
- Probability of occurrence is a description of the probability of the impact actually occurring as improbable (less than 5% chance), low probability (5% to 40% chance), medium probability (40% to 60% chance), highly probable (most likely, 60% to 90% chance) or definite (impact will definitely occur).

11.3 Method of assessing duration significance

Duration refers to the length of time over which an environmental impact may occur, i.e. immediate/transient, short-term (0 to 7 years), medium-term (8 to 15 years), long-term (greater than 15 years with impact ceasing after the closure of the project), or permanent.

11.4 Stages at which competent authority will be consulted

The competent authority, DMRE, will be consulted:

- Prior to submission of the application for WML and EA;
- During the 30-day period for public review of the DSR;
- During the 43-day period of evaluation of the scoping report;
- During the 106-day period of development of the EIR and EMPr;
- During the 30-day period for public review of the draft EIR and EMPr;
- During the 107-day period of evaluation of the EIR and EMPr; and
- In the event of an appeal.

11.5 Public participation during the impact assessment phase

Public participation during the impact assessment phase of the EIA will entail a review of the findings of the EIA, presented in the EIA Report and Environmental Management Programme (EMPr), and the specialist studies. These reports will be made available for public comment for a period of 30 days. A public meeting will also be convened (which will comply with the national COVID-19 Regulations).

11.5.1 Notification of interested and affected parties

All registered I&APs will be advised timeously and by e-mail, fax or telephone call of the availability of these reports, which they could either download from Golder's public website, view at designated public places or request from Golder's Public Participation Office. They will be encouraged to comment either in writing (mail or e-mail) or by telephone. Ample notification of due dates will be provided. I&APs will also be notified of the details of the public meeting.

11.5.2 Engagement process to be followed

All the issues, comments and suggestions raised during the comment period on the draft EIA report/EMPr will be added to the CRR that will accompany the Final EIA report/EMPr. The final EIA report/EMPr will be submitted to the DMRE for a decision on the proposed project.

On submission of the Final EIA Report/EMPr to the authorities, a personalised letter will be sent to every registered I&AP to inform them of the submission and the opportunity to request copies of the final reports.

11.5.3 Information provided to I&APs

In addition to all the information provided in this scoping report, the project description, the description of the baseline environment, the results of the specialist assessments, the potential impacts identified and the recommended mitigation measures will be provided to I&APs during the impact assessment phase.

11.6 Tasks to be undertaken during the environmental impact assessment process

The various specialist studies that will be undertaken during the EIA process are described in Section 11.1, and the associated tasks are briefly summarised here.

11.6.1 Finalisation of site layout

The preliminary site layout and location of infrastructure has been determined by taking into consideration the environmental baseline information generated during the scoping process as well as economical and practical considerations associated with the proposed mining operations. The layout will be finalised after taking into consideration any additional information that becomes available during the EIA process.

11.6.2 Specialist investigations

The various specialist studies that will be undertaken during the EIA process are described in Section 11.1 and include the following:

- Wetlands and aquatic ecology;
- Hydrology assessment;
- Hydrogeological assessment;
- Waste characterisation and risk assessment;
- Air quality and climate change assessment;
- Visual assessment;
- Heritage assessment;
- Socio-economic assessment; and
- Closure cost assessment.

11.7 Measures to avoid, reverse, mitigate, manage impacts and determine residual risks

A summary of the potential mitigation measures is provided in Section 10.5. The plan of study for the EIA for possible measures that will be employed to avoid, reverse, mitigate and manage identified impacts and the determination of residual risks associated with the proposed site operations will be undertaken at the EIA phase.

Table 12 outlines possible measures that can be employed to avoid, reverse, mitigate and manage identified impacts and the determination of residual risks associated with the proposed activities at Zibulo Colliery.

Table 12: Activities, impacts, mitigation and residual risks

Activity	Potential Impact	Mitigation Type	Potential Residual Risk
Construction and operation of the	Groundwater: ■ Deterioration of groundwater quality.	Monitoring and continuation of opencast pit dewatering and treatment at eWRP.	Low residual risk if mitigation measures are properly implemented.

Activity	Potential Impact	Mitigation Type	Potential Residual Risk
proposed facilities	Surface water: <ul style="list-style-type: none"> ■ Change of surface water quality. ■ Changes in surface water runoff and erosion. ■ Change in volume of mine affected water to be managed. 	Monitoring, effective storm water management, and concurrent rehabilitation.	Low residual risk, if mitigation measures are properly implemented.
	Wetlands: <ul style="list-style-type: none"> ■ Loss of wetland habitat. ■ Increased sedimentation. ■ Changes in the surface water quality, changes in the surface and subsurface water flow, and erosion. 	Monitoring and effective groundwater and storm water management. Appropriate operational management to minimise the impact on wetlands.	Low residual risk, if mitigation measures are properly implemented.
	Air Quality: <ul style="list-style-type: none"> ■ Release of particulates, combustion gases and VOCs into the atmosphere. 	Monitoring, dust suppression, discard compaction and concurrent rehabilitation.	Possible exceedances of acceptable air quality limits. Low residual risk if mitigation measures are implemented.
	Noise: <ul style="list-style-type: none"> ■ Noise impact from construction vehicles and operational activities (conveyor). 	Monitoring, and effective operational management.	Possible exceedances of acceptable noise levels. Low residual risk if mitigation measures are implemented.
	Visual: <ul style="list-style-type: none"> ■ Visual impact as a result of the discard facility and conveyor. 	Monitoring and effective operational control.	A low residual risk is envisaged if mitigation measures are implemented.
	Cultural and heritage: <ul style="list-style-type: none"> ■ Unearthing of unknown graves. 	Implementation and monitoring of a chance find protocol.	No residual risk is envisaged if mitigation measures are implemented.
	Socio-economic: <ul style="list-style-type: none"> ■ Nuisance dust and noise; ■ Visual impact; ■ Impact on groundwater or surface water quality as a result of the discard facility. 	Implementation of mitigation measures for air quality, noise, visual and water.	A low residual risk is envisaged if mitigation measures are implemented.

12.0 OTHER INFORMATION REQUIRED BY COMPETENT AUTHORITY

12.1 Impact on socio-economic conditions of any directly affected persons

The socio-economic impacts on the residents close enough to be directly affected can only be determined after the specialist studies described in Section 11.1 (plan of study for the impact assessment) have been completed. No relocation is required.

12.2 Impacts on any national estate

It is highly unlikely that any cultural/heritage resources will be impacted by the proposed activities. However, the possibility of chance finds during construction cannot be ruled out.

13.0 OTHER MATTERS REQUIRED IN TERMS OF SECTIONS 24(4)(A) AND (B) OF THE NEMA

- Section 24(4)(a) (iii) requires that a description of the environment likely to be significantly affected by the proposed activity be provided. The description of the environment is provided in Section 8.0 of this report;
- Section 24(4)(a) (iv) requires an investigation of the potential consequences for or impacts on the environment as a result of the activity and assessment of the significance of those potential consequences or impacts. See Section 9.0 of this report, where potential impacts were identified. Their assessment, as detailed in the Plan of Study for Impact Assessment (Section 11.1 will be done during the impact assessment phase of the EIA; and
- Section 24(4)(a) (v) references public information and participation procedures, which have been dealt with in Sections 7.0 and 11.5 of this report.

14.0 UNDERTAKING REGARDING CORRECTNESS OF INFORMATION

I, Olivia Allen, herewith undertake that the information provided in the foregoing report is correct and that the comments and inputs from stakeholders and I&APs have been correctly recorded in this report.

Date: _____

15.0 UNDERTAKING REGARDING LEVEL OF AGREEMENT

I, Olivia Allen, herewith undertake that the information provided in the foregoing report is correct and that the level of agreement with I&APs and stakeholders has been correctly recorded and reported herein.

Date: _____

16.0 REFERENCES

- Aquatico. (2019). *Anglo Coal: Zibulo Colliery Annual Water Quality Assessment Report January - December 2019*.
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APPENDIX A

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APPENDIX B

**CV of Environmental Assessment
Practitioner**

APPENDIX C

Stakeholder Database

APPENDIX D

**Stakeholder Letter, Registration
and Comment Sheet**

APPENDIX E

Newspaper Ad and Site Notice

APPENDIX F

**Focus Group Meeting
18 September 2020**



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