

PROPOSED DEVELOPMENT OF A HYDROGEN PRODUCTION DEVELOPMENT PLATFORM AT THE MOGALAKWENA PLATINUM MINE

JULY 2022

1. INTRODUCTION

Anglo American Platinum Limited (AAP) an Anglo American company, is proposing to expand its existing Proof of Concept Plant hydrogen production facility, with the inclusion of a hydrogen Production Development Platform within the Mining Right area of the Mogalakwena Mine (the Project).

The Mogalakwena Mine is an open pit platinum mine located approximately 20 km north-west of the town of Mokopane in the Limpopo Province. The mine falls within the Waterberg District Municipality and the Mogalakwena Local Municipality. The Project is an expansion of the already approved Proof of Concept Plant hydrogen production facility, which covers an area of approximately 8 ha. A locality map is provided in Figure 1.

2. ENVIRONMENTAL AUTHORISATION PROCESS OVERVIEW

Environmental Authorisation is required before AAP can commence with the proposed Project. Application for Environmental Authorisation is made in terms of the National Environmental Management Act (No 107 of 1998) (as amended) and the Environmental Impact Assessment (EIA) Regulations 2014 for activities listed under the EIA Regulations Listing Notices of 2014. This proposed project triggers the following listed activity as included in the EIA Regulations Listing Notice 1.

Listing Notice 1, Activity 67: *“Phased activities for all activities - (i) listed in this Notice, which commenced on or after the effective date of this Notice or similarly listed in any of the previous NEMA notices, which commenced on or after the effective date of such previous NEMA Notices; where any phase of the activity was below a threshold but where a combination of the phases, including expansions or extensions, will exceed a specified threshold.”*

As such a Basic Assessment Process will be required. The Application is made to the Department of Mineral Resources and Energy (DMRE).

The Environmental Authorisation application process includes; a Pre-application phase, a Basic Assessment Report (BAR) and Environmental Management Programme Report (EMPr) phase, and a Competent Authority review phase (see Section 9 for a full description).

PURPOSE OF THIS DOCUMENT

This document has been prepared to inform you about:

- The Project and associated alternatives;
- The baseline environment of the Project area;
- The environmental authorisation processes being followed for this Project;
- Potential impacts and related specialist input; and
- How you can have input into the environmental authorisation process.

WHO ARE THE CONSULTANTS?

SLR Consulting (South Africa) (Pty) Ltd (SLR), has been appointed by Anglo American as the independent Environmental Assessment Practitioner (EAP), to undertake the environmental authorisation process.

YOUR ROLE

You have been identified as an interested and affected party (I&AP) who may wish to be informed about the proposed Project and have input into the environmental authorisation process and reports. You have an opportunity to review this document and to provide your initial comments to SLR for incorporation in the BAR. You will also be given the opportunity to review and comment on the BAR and EMPr.

All comments will be recorded and included in the reports submitted for decision-making.

HOW TO RESPOND

Responses to this document can be submitted by means of the attached comments sheet and/or through communication with the person(s) listed below.

WHO TO CONTACT?

SLR contact: Mavisha Nariansamy or
Gugu Dhlamini
Tel: (011) 467 0945
Email: mogh2@slrconsulting.com



- Legend**
- Towns / Villages
 - Roads
 - Power Lines
 - Rivers
 - Dams
 - South African Protected Areas

0 1000 2000 Meters
 Scale: 1:62 500 @ A3
 Projection: Transverse Mercator
 Datum: Hartebeeshoek, Lo 29

ANGLO-AMERICAN

Figure 1: Local Setting

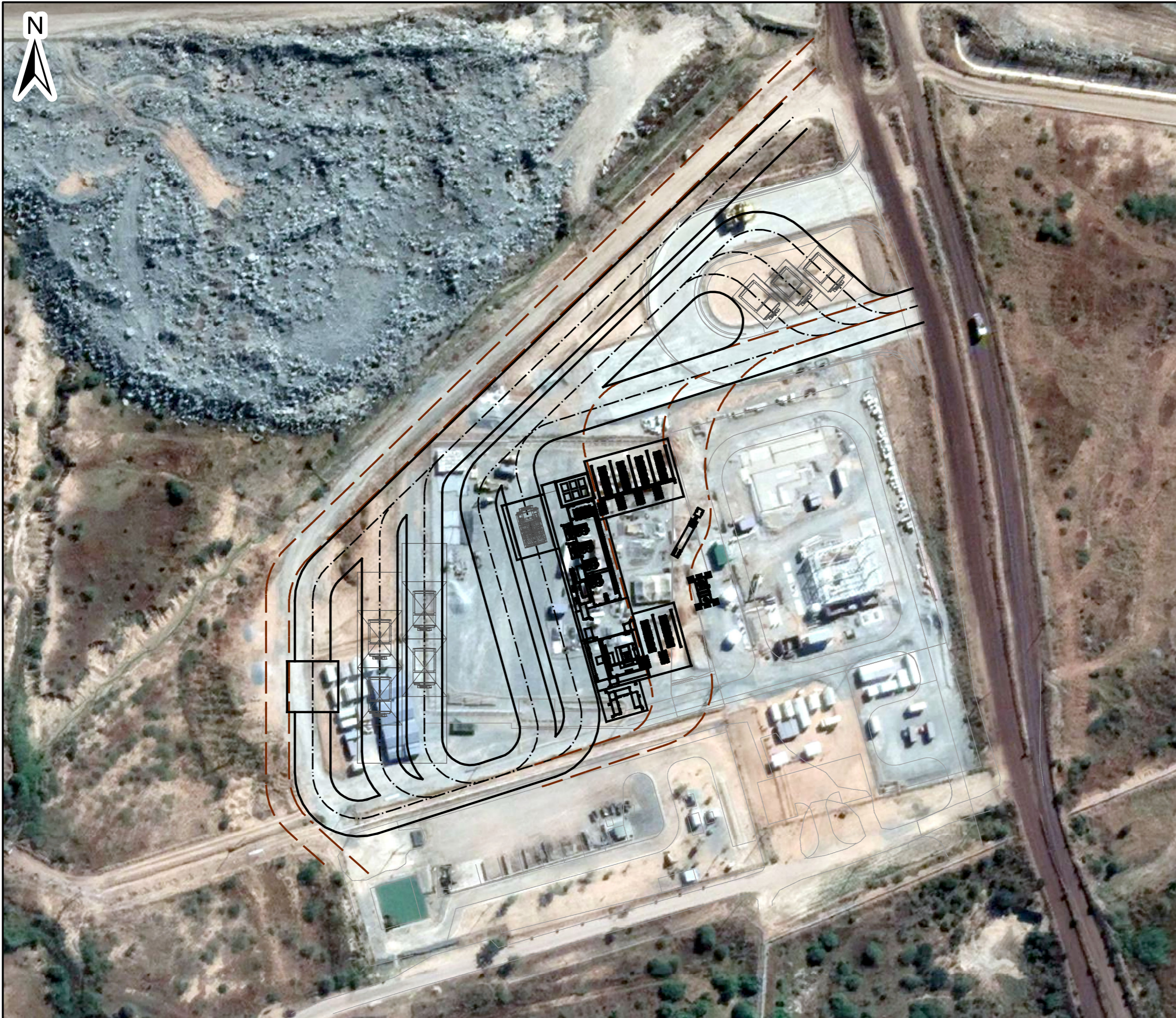


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720.01145.00009

2022/05/26

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



0 20 40 Meters
 Scale: 1:3 400 @ A3
 Projection: Transverse Mercator
 Datum: Hartbeeshoek, Lo 29

ANGLO-AMERICAN

Figure 2: Proposed Production Development Platform Layout



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3. OVERVIEW OF THE PROPOSED PROJECT

The Mogalakwena Mine has an existing and approved Proof of Concept Hydrogen Plant which is located on the Farm Zwartfontein 818 LR within the mine's Mining Right area. The Proof of Concept Plant has successfully demonstrated the practicality and operation of using hydrogen as a renewable fuel medium for Haul Trucks. The Proof of Concept Plant is comprised of three components:

- Hydrogen Generating Plant;
- Hydrogen Fuel Cell technology demonstration; and
- Solar Photo Voltaic (PV) Plant.



Proof of Concept Plant¹

As part of this Project, the Proof of Concept Plant will be expanded with additional refueling and distribution components to supply an additional three mine haul trucks with hydrogen. The Project will ultimately connect hydrogen production to mine haul trucks through the establishment of a Deploy Ultra Heavy Duty refuelling system, using commercially available equipment.

The aim of the Project is to demonstrate rapid refuelling of the mine haul trucks at high pressure, and to ensure ample hydrogen storage availability on trucks for transportation of material (ore) from the mining pits to the destination (crusher area/dumps). This will require the development of fixed high-pressure and mobile low-pressure hydrogen storage infrastructure/facilities. The total additional storage of hydrogen required will be approximately 184.46 m³ (fixed and mobile storage), with a total combined hydrogen storage capacity of 266.46 m³.

The Project components include the following:

- Export system;
- High pressure compressors (export and refuelling);
- High-capacity tube trailers;

- Transformer bay;
- Supply and export tube trailer bays;
- Hydrogen refuelling system (HRS);
- Fuel Cell Electric Vehicle (FCEV) haul trucks;
- Truck refuelling bay; and
- Truck workshop.



Hydrogen Powered Haul Truck (Fuel Cell Electric Vehicle (FCEV))²



Schematic of Export compressor³



High Capacity Tube Trailer⁴



Hydrogen Refuelling Compressors⁵

¹ Anglo American (April 2022)

² Williams Advanced Engineering, <https://industryeurope.com/sectors/metals-mining/the-world%E2%80%99s-largest-hydrogen-powered-mining-truck/> April 2022)

SLR Consulting (South Africa) (Pty) Ltd

³ LIFTE H2 (April 2022)

⁴ LIFTE H2 (April 2022)

⁵ LIFTE H2 (April 2022)



Proposed Production Development Platform Layout

The construction phase of the Project will include, but is not limited to the following:

- site clearance (removal of the existing solar PV panels from the Proof of Concept Plant);
- earthworks (including foundations, trenches, and berms) in accordance with the approved civil/structural engineering drawings; and
- the assembly and erection of already prefabricated components within the Proof of Concept Plant area.

4. PROJECT ALTERNATIVES

The Project design is based on the expansion of the existing and authorised Proof of Concept Plant. It follows that the proposed site layout will be dictated by the current location of the Proof of Concept Plant. The Proof of Concept Plant is located within the operational area of the Mogalakwena Mine, as such, no site layout alternatives were considered for the Project. The chosen site layout ensures the least impact on existing land use and excludes the clearing of additional and undisturbed land.

The Project technology is based on the latest advancements in providing green energy to support a transition to zero carbon emissions on the Mogalakwena Mine. The proposed

technology therefore considers the latest global approaches in hydrogen production and fuel cell technology. The Project is also based on the expansion of technology of the Proof of Concept Plant. It follows that technology alternatives were limited. Criteria pertaining to environmental, heritage/cultural, socio-economic, commercial, and technical aspects will be taken into consideration and included in the BAR document, which will be submitted for public review and authority decision making.

5. NEED AND DESIRABILITY

Climate change is a globally recognised challenge and Anglo American is committed to being part of the solution. South Africa is particularly vulnerable to climate change impacts and has developed a strategic response as set out in the Climate Change Bill (2018).

The Climate Change Bill describes three key objectives:

- provide for the coordinated and integrated response to climate change and its impacts by all spheres of government in accordance with the principles of cooperative governance;
- effectively manage the inevitable climate change impacts (adaptation); and
- make a fair contribution to the global effort to stabilise greenhouse gas concentrations in the atmosphere in order to keep the temperature increase well below 2°C.

Anglo American has committed to achieve carbon neutrality on direct emissions from owned or controlled sources (Scope 1), indirect emissions from the generation of purchased electricity (Scope 2) and to reduce all other indirect emissions that occur through the AA value chain (Scope 3) by 50% by 2040, across their operations. One way to achieve this is through FutureSmart Mining™, an Anglo American innovation-led approach to sustainable mining. Integral to FutureSmart Mining™ is the Sustainable Mine Plan, designed to tackle the most pressing environmental, social and governance challenges such as climate change.

The Anglo American Green House Gas emission reduction ambitions are built on the following⁶:

- Scope 1: Deployment of FutureSmart Mining™ is central to reducing energy demand and delivering the step-change innovation required for avoiding emissions, including the capture and use of fugitive methane.
- Scope 2: The procurement and rapid roll-out of renewable power supply, including through embedded generation where necessary.

As part of this commitment, Anglo American has implemented the NuGen™ programme as part of FutureSmart Mining™ programme to develop a hydrogen-powered mining truck fleet in collaboration with leading

fuel cell, electrolyser, battery, and engineering firms. The NuGen™ technology development programme is focused on decarbonising mine haulage and building onsite hydrogen production. The Mogalakwena Mine has pilot tested the NuGen™ technology through their Proof of Concept Plant.

This Project will comprise of a ramp up of the Proof of Concept Plant to accommodate an additional three mine haul trucks and high-pressure storage (fixed and mobile). The Project is desirable in that it will demonstrate the practicality of a ramp up of the Proof of Concept Plant in preparation for the future full-scale hydrogen fueled adoption of FCEV at the Mogalakwena Mine. The location of the Project will also ensure limited additional environmental disturbance.

6. OVERVIEW OF BASELINE ENVIRONMENT

The Project will be located within the existing footprint of the Proof of Concept Plant of the Mogalakwena Mine. The area around the Proof of Concept Plant has been completely transformed by mining activities, while the topography around the mine is moderately undulating. The mine sits at an altitude of 1 200 m.

The area is characterised by a semi-arid climate with days ranging from warm to hot all year round. The mean annual rainfall for the Mogalakwena Mine is recorded as 620 mm. The rainy season occurs from October to April with rainfall events common in the afternoons and early evenings. The occurrences typically result in thunderstorms during the rainy season. Hail is common in the area during the hot summer months.

The mine falls within the Makhado Sweet Bushveld vegetation type of the Savanna Biome which is typically characterised by short and shrubby veld with poorly formed grass layers. The vegetation sensitivity of the Project area is very low because the area has already been cleared.

Visually, the scenic appeal of the Project site is considered to be low as it is located on the Proof of Concept footprint area, amidst existing mine infrastructure (haul roads, the Blinkwater tailings storage facility, the Vaalkop tailings storage facility, water containment dams and buildings).

⁶ Anglo American Climate Change Report 2021.

The Mogalakwena mine has an established air quality monitoring programme. The community located closest to the Project area is the Ga-Molekana community. The Project activities during the construction phase has the potential to impact on ambient air quality. The mine has established ambient air quality monitoring stations (PM₁₀ and PM_{2.5}) in the Ga-Molekana community and within the mining right area. Air quality and dust impacts during the construction and operation phases will be monitored and managed according to existing air quality management measures and monitoring programme implemented for the mine. Existing noise sources within the Project area are dominated by the existing mining operations, with traffic noises (feeder roads to the mine and N 11 road) also contributing to increase in ambient noise levels.

Water resources within proximity of the Project area includes an ephemeral drainage line and the Mohlosane River. An aquatic specialist study will be undertaken. These are located west and immediately south of the Project area, respectively. The groundwater table varies between 0.5 – 24 m below ground and flows from south-east to north-east. The small scale of the Project in relation to the existing mine operations, is not expected to affect groundwater flow.

Extensive heritage specialist studies have been undertaken at the Mogalakwena Mine. Resources identified within the Mining Right area includes graves, burial grounds, homestead, Late Iron Stone walled sites and Stone Age sites. However, Heritage, Cultural and Palaeontological resources has not been identified and are not anticipated to be found on the Project area.

7. POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS

As the Project is located on a previously disturbed area of the Proof of Concept Plant operations, there are unlikely to be any significant negative impacts on soils and land capability, groundwater, geology, topography, cultural heritage, palaeontology, and land use. The Project is also anticipated to have a positive impact on reducing carbon emissions and climate change.

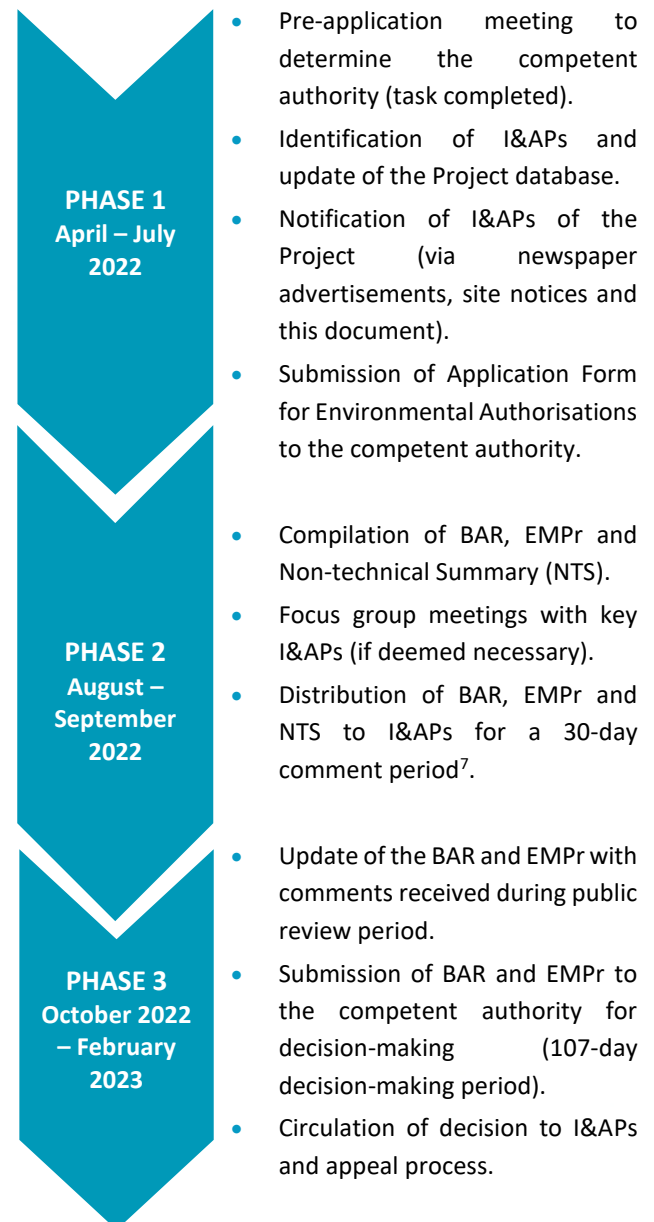
Typical construction impacts (such as dust, noise, and traffic) and operational impacts (such as visual impacts,

job creation, positive climate change impacts) will be assessed by the EAP and standard mitigation and or enhancement measures will be recommended as part of the EMPr.

8. ENVIRONMENTAL AUTHORISATION AND PUBLIC PARTICIPATION PROCESS

BASIC ASSESSMENT PROCESS

The Basic Assessment Process provides information pertaining to procedural components and the environment in which the Project is being undertaken. It identifies and assesses, in consultation with I&APs, the negative and positive biophysical, cultural heritage, and socio-economic impacts. The Basic Assessment process steps and estimated timeframes are provided below.



⁷ Section 38 of the National Heritage Resources Act (No. 25 of 1999)

PUBLIC PARTICIPATION PROCESS

The purpose of the public participation process is to notify I&APs of the proposed Project and to provide them with the opportunity to raise any issues and/or concerns regarding the Project. The public participation process will be undertaken in accordance with the requirements of Chapter 6 of the NEMA EIA Regulations 2014.

Online and digital platforms will be utilised to engage with I&APs. These platforms will include a combination of email, WhatsApp, SMS, posters, and access to SLR's data-free website where reports can be accessed. I&APs identified to date for inclusion in the environmental authorisation process are shown below.

- Parastatals (e.g., South African National Road Agency Limited, Eskom, South African Weather Services, National Energy Regulator of South Africa, South African National Energy Development Institute, etc.).

Please let us know if there are any additional parties that should be involved.

I&APS INVOLVED IN THE ENVIRONMENTAL AUTHORISATION PROCESS

COMPETENT AUTHORITY

- Department of Mineral Resources and Energy.

COMMENTING AUTHORITIES

- Department of Water and Sanitation (Lydenburg Area).
- Civil Aviation Authority.
- Department of Roads and Public Works (Limpopo Province).
- Limpopo Department of Economic Development, Environment and Tourism.
- Limpopo Department of Rural Development and Land Reform.
- Land Claims Commissioner.
- Limpopo Department of Roads and Public Transport.
- Limpopo Heritage Resources Agency (LHRA).
- Limpopo Department of Agriculture.

LOCAL AUTHORITIES

- Mogalakwena Local Municipality.
- Waterberg District Municipality.
- Tribal Authorities.

LANDOWNERS, LAND USERS AND OTHER I&APS

- Surrounding landowners, land users and communities.
- Non-government organisations and associations.
- Surrounding mines and industries.

ANGLO AMERICAN PLATINUM LIMITED
BACKGROUND INFORMATION DOCUMENT

PROPOSED DEVELOPMENT OF A HYDROGEN PRODUCTION DEVELOPMENT PLATFORM AT THE
MOGALAKWENA PLATINUM MINE

JULY 2022

PARTICULARS OF THE INTERESTED AND AFFECTED PARTY		DATE	
NAME			
ORGANISATION/COMPANY			
POSTAL ADDRESS			
		POSTAL CODE	
TELEPHONE NUMBER			
E-MAIL ADDRESS			
PLEASE REGISTER ME AS AN INTERESTED & AFFECTED PARTY (I&AP) SO THAT I MAY RECEIVE FURTHER INFORMATION AND NOTIFICATIONS DURING THE ENVIRONMENTAL AUTHORISATION PROCESS	YES	NO	
HOW WOULD YOU LIKE TO RECEIVE YOUR NOTIFICATIONS?	E-MAIL		
	POST		
	SMS		

PLEASE WRITE YOUR COMMENTS AND QUESTIONS HERE (please use separate sheets if you wish)

PLEASE INCLUDE THE FOLLOWING OF MY COLLEAGUES/FRIENDS/NEIGHBOURS AS I&APS FOR THIS PROJECT:

Please return completed forms to:
SLR contact: Mavisha Nariansamy or Gugu Dhlamini
Tel: (011) 467 0945
Email: mogh2@slrconsulting.com

By providing your personal information to be registered as an I&AP for this project you consent to SLR managing your information in accordance with the Protection of Personal Information Act 4 of 2013. This includes; retaining and using your Personal Information as part of a contact database for this and/or other ESIA's, contacting you regarding this and/or other ESIA processes, disclosing the database to other authorised parties including the applicant for lawful purposes, and including any correspondence in the ESIA Reports. You may request for your Personal Information to be deleted from the Project database or comments to be excluded from ESIA Reports at any time by contacting SLR.

THANK YOU FOR YOUR CONTRIBUTION.