PROPOSED AGGREGATE / GRAVEL MINE ON A PORTION OF PORTION 15 ON THE FARM RIETSPRUIT NR 437, IS MSUKALIGWA LOCAL MUNICIPALITY, MPUMALANGA PROVINCE

SITE SENSITIVITY REPORT

APRIL 2022

REFERENCE NUMBER: *MP 30/5/1/3/2/13080 MP*

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EXECUTIVE SUMMARY

Inzalo Crushing and Aggregates (Pty) Ltd (hereinafter referred to as “the Applicant”) intends applying for a mining permit to mine stone aggregate/ gravel on a portion of Portion 15 on Farm Rietspruit nr 437, IS, Msukaligwa Local Municipality, Mpumalanga Province.

The proposed mining footprint will be 4.9 ha and will be developed over an undisturbed area of the farm. The mining method will make use of blasting in order to loosen the hard rock; the material will then be loaded and hauled to the crushing plant where it will be screened to various sized stockpiles. The aggregate will be stockpiled until it is transported from site using tipper trucks. All mining related activities will be contained within the approved mining permit boundaries.

The proposed project triggers listed activities in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) and the Environmental Impact Assessment Regulations 2014 (as amended 2017) and therefore requires an environmental impact assessment (basic assessment process) that assess project specific environmental impacts and alternatives, consider public input, and propose mitigation measures, to ultimately culminate in an environmental management programme that informs the competent authority (Department of Mineral Resources and Energy) when considering the environmental authorisation.

Project description

Inzalo Crushing and Aggregates (Pty) Ltd (hereinafter referred to as "the Applicant") intends applying for a mining permit to mine stone aggregate/ gravel on a portion of Portion 15 on Farm Rietspruit nr 437, IS, Msukaligwa Local Municipality, Mpumalanga Province.

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Should the MP be issued and the mining of dolerite be allowed, the proposed project will comprise of activities that can be divided into three key phases namely the:

(1) *Site establishment/construction phase* which will involve the demarcation of the permitted mining area. Site establishment will also necessitate the clearing of vegetation, the stripping and stockpiling of topsoil, and the introduction of mining machinery and equipment

(2) *Operational phase* that will entail the mining of dolerite from the approved footprint area via conventional open cast mining methods. The mining method will make use of blasting in order to loosen the hard rock; upon which the loosened material will be transported to the crushing and screening processing plant where it will be screened to various sized stockpiles, before it is sold and transported from site to clients

(3) *Decommissioning phase* which entails the rehabilitation of the affected environment prior to the submission of a closure application to the Department of Mineral Resources and Energy (DMRE). The permit holder will further be responsible for the seeding of all

rehabilitated areas. Once the full mining area is rehabilitated, the mining permit holder will be required to submit a closure application to the DMRE in accordance with section 43(4) of the MPRDA, 2002. The Closure Application will be submitted in terms of Regulation 62 of the MPRDA, 2002, and Government Notice 940 of NEMA, 1998 (as amended).

The proposed mining area is approximately 4.9 ha in extent and the applicant, intents to win material from the area for at least 2 years with a possible extension of another 3 years. The gravel to be removed from the quarry will be used for construction industry in the vicinity. The depth of the quarry will be approximately 35m with the intention to go deeper. The proposed quarry will therefore contribute to the upgrading / maintenance of road infrastructure and building contracts in and around the Ermelo area

The mining activities will consist out of the following:

- Stripping and stockpiling of topsoil;
- Blasting
- Excavating;
- Crushing & Screening;
- Stockpiling and transporting;
- Sloping and landscaping upon closure of the site; and
- Replacing the topsoil and vegetation the disturbed area.

The mining site will contain the following:

- Drilling equipment;
- Excavating equipment;
- Earth moving equipment;
- Static crushing and screening plants
- Access Roads;
- Site Office (Containers);

- Site vehicles;
- Parking area for visitors and site vehicles;
- Vehicle service area;
- Wash bay;
- Workshop (Containers);

Figure 1: Satellite view showing the access road entrance (white arrow) to the proposed mining area site alternative 1(blue polygon) as well as site alternative 2(pink polygon).

This report addresses the findings of the Screening Tool Report (Appendix P), generated from the National Web Based Environmental Screening Tool, and provides a motivation for the various specialist studies identified to be conducted. As per the Screening Tool Report, the proposed site is located within a medium sensitivity area from an agricultural perspective, a high sensitivity area from an animal species perspective, a low sensitivity area from an aquatic biodiversity perspective, a medium sensitivity area from a civil aviation perspective, a medium sensitivity area from a plant

species perspective, a low sensitivity area from a defense perspective, a medium sensitivity form a paleontology perspective and a very high sensitivity area from a terrestrial biodiversity perspective.

Summary of specialist reports.

(This summary must be completed if any specialist reports informed the impact assessment and final site layout process and must be in the following tabular form):-

Table 1: Summary of specialist reports

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with X if applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
The screening report for an environmental authorisation, as required in terms of the 2014 NEMA EIA Regulations of a portion of portion 15 on Farm Rietspruit nr 437, IS, Msukaligwa Local Municipality, Mpumalanga Province. The report identified the following list of specialist assessment for inclusion in the assessment report: • Agricultural Impact Assessment; • Archaeological and Cultural Heritage Impact Assessment; • Paleontology Impact Assessment; • Terrestrial Biodiversity Impact Assessment; • Aquatic Biodiversity Impact Assessment; • Hydrology Assessment; • Noise Impact Assessment; • Radioactivity Impact Assessment; • Traffic Impact Assessment; • Geotechnical Assessment; • Socio-economic Assessment; • Plant Species Assessment; • Animal Species Assessment. Inzalo Crushing and Aggregates (Pty) Ltd appointed Greenmined Environmental (Pty) Ltd as the environmental impact assessment practitioner (EAP) to undertake the EIA associated with the mining permit application. In light of this Greenmined would like to respond as follows to the list of required specialist studies:			

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- Agricultural Impact Assessment (AIA):

According to the Agricultural Compliance Statement (Appendix M6) that was conducted by Blue Leaf Environmental, the following was found during the site visit:

- Up to 90% of the site is covered by natural grassland vegetation dominated by *Themeda triandra*. Small trees occur on the low ridge running through the centre of the study site.
- No agricultural activities were observed within the study site, literature also confirmed that other than grazing, no other agricultural activities were practised within the study site.
- Water is a limiting factor and the nearest surface water occur over 2km away from the site.

Based on the above, it is the opinion of the specialist that the land contained within the proposed mining study site is considered as low sensitivity for agriculture. A full Agricultural Assessment is therefore NOT required.

- Archaeological and Cultural Heritage Impact Assessment (HIA) & Paleontology Impact Assessment (PIA):

As per the Heritage Impact Assessment (Appendix N), the study area is fallow and has not been developed or impacted on by adjacent mining activities. Examination of historical topographic maps and aerial images showed no structures or stone walled settlements in the study area and the impact footprint is considered to be of low heritage potential. This was confirmed during the site visit and no heritage finds of significance was recorded during the survey.

According to the SAHRA Paleontological sensitivity map the study area is of insignificant paleontological significance, but very close to an area of very high sensitivity and an independent study (Appendix N1) was conducted for this aspect. Bamford (2022) concluded that the proposed site lies on the non-fossiliferous Jurassic dolerite but is very close to the very highly sensitive Vryheid Formation that could preserve fossil plants of the Glossopteris flora. No fossils were found during the site visit. Nonetheless a Fossil Chance Find Protocol should be added to the EMPr.

No adverse impact on heritage resources is expected by the project and it is recommended that the project can commence on the condition that the following recommendations (Section 10) are implemented as part of the EMPr and based on approval from SAHRA.

- Terrestrial Biodiversity Impact Assessment (TBIA) & Plant Species Assessment (PSA) & Animal Species Assessment (ASA):

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As mentioned earlier, as per the botanical assessment report conducted by DPR Ecologist dated February attached as appendix M – The site itself still consists of natural vegetation which is dominated by scattered trees and a well-developed grass layer. Disturbances are present and include overgrazing by domestic livestock and low-level infestation by exotic weeds and shrubs, though overall the site is still largely natural. However, the surrounding areas, especially toward the south and west of the site, has been heavily modified by previous mining activities. The site contains several plants listed as protected in Mpumalanga such as *Eucomis montana Haemanthus humilis subsp. Hirsutus Gladiolus dalenii subsp. dalenii, Gladiolus ecklonii, Gladiolus crassidolius, Boophone distichia and Zantedeschia rehmannii*.

These plants are not listed as endangered but are protected and therefore listed as SCC. The necessary permits should be obtained and plants moved to adjacent areas. This is standard recommendation for these plants. The spatial guidelines for land use for these grasslands that are relevant to this project area include (SANBI,2013);

- Avoid any further fragmentation of primary grassland;
- Maintain connectivity between natural areas across the landscape;
- Direct impacting activities away from grasslands on dolomitic substrates; and
- Establish and respect buffers around protected areas, wetlands and rivers.

Various small mammals and reptiles occur are likely to on the property. Since there is an existing quarry nearby, the fauna at the site are familiar with mining activities and will not be impacted by the proposed mining activities as they will be able to move away or through the site, without being harmed

- Aquatic Biodiversity Impact Assessment (ABIA) & Hydrology Assessment (HA):

The proposed mining area falls within the C11F quaternary catchment which falls within the upper reaches of the Vaal River primary catchment that is situated in the Upper Vaal Water Management Area which is managed by the Department of Water and Sanitation (DWS). A small wetland system is located 130m from the southern border of the site. According to the Risk Assessment conducted by DPR Ecologist, - mining within close proximity of the valley-bottom wetland is anticipated to have a low risk as long as a 100-meter buffer between the edge of the wetland as delineated and the quarry excavations, stockpile areas, chemical toilets, wastes and any hazardous materials (diesel, etc.) are maintained. A small artificial dam and wetland area forming in previous excavations oc\cur approximately 450 meters to the west of the site. These artificial wetland areas also fall within a separate catchment, upstream of the site and therefore the proposed mining area will not be able to have any effect on these artificial wetland areas. Therefore, proposed project does require a General Authorisation in terms of Section 39 of the National Water Act, 1998 (Act No 36 of 1998) which will be submitted to DWS by the applicant prior to commencement of mining activities on this application

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- Air Quality Impact Statement (AQIS) & Noise Impact Statement (NIS):

  The proposed activity will contribute the emissions mechanical mining equipment to the receiving environment for the duration of the operational phase. The Air Quality Impact Statement (Appendix M1) conducted by Airshed Planning Professionals (Pty) Ltd states it is unlikely that the proposed operations will result in significant detrimental impact on air quality in the area, with very low impacts expected at nearby sensitive receptor locations. It is, however, recommended that best practise mitigation measures, such as regular watering of all on-site unpaved roads, water sprays on crushers and screens, enclosure of conveyers and minimisation of drop heights to stockpiles, be implemented to ensure that particulate emissions, and their consequent impact on the receiving environment, is minimised and that off-site pollutant concentrations and dust fallout is compliant with the South African National Ambient Air Quality Standards (Gazette 32816, 24 December 2009) and the National Dust Control Regulations (Gazette 36974, 1 November 2013).

  A complaints register should be kept on-site and all interested and affected parties, including nearby residents but also personnel, be encouraged to report any air quality related issued, no matter how trivial.

  As per Noise Impact Statement (Appendix M2) conducted by Airshed Planning Professionals (Pty) Ltd - it is unlikely that the proposed operations will result in significant detrimental impact on environmental noise for most of the study area. However, mining and processing activities are currently planned to be 24 hours per day, and noise generated by night-time operations are likely to be much more noticeable, given the typical low baseline noise levels in rural areas.

  The increase in noise levels, given that baseline noise levels are likely to be very low due to types of activities in the area, could be noticeable and possibly disturbing at the two closest sensitive receptors: the farmstead to the northwest (on the opposite side of the R39 road) and the farmstead to the east-northeast (south of the Rand Agro Rietspruit bunker). It is recommended that a noise survey campaign be conducted at these two locations before activities commence to establish baseline noise levels, and then again once the mine and processing plant is fully operational to establish operational noise levels. Noise levels recorded during these sampling campaigns should be compared, and if an increase of greater than 3 dBA is noted, additional mitigation measures (either source based, receiver based, or both) should be considered. If night-time noise levels recorded during operations are significantly higher (> 5 dBA) than baseline noise levels, night-time noise generating activities should be avoided. While noise generated by the activities are not expected to impact at any sensitive receptors except possibly at the two closest farmsteads, it is recommended that best practise mitigation and management measures be implemented to ensure minimal impact on the receiving environment. Recommended measures include regular maintenance and servicing of the vehicle fleet, avoidance of unnecessary vehicle idling times, maintenance of all road surfaces to avoid potholes and corrugations, minimising the need for vehicles to reverse (and thereby use of their reverse alarms), implementation of strict speed limits, enclosure of stationary noise sources such as compressors and pumps, and wherever possible, limiting noise generating activities to between 06:00 and 22:00. In addition to the above, it is imperative that blasting schedules be communicated to all surrounding residents, and that a complaints register be in place and that all interested and affected parties be encouraging to report any noise related complaints.

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- Radioactivity Impact Assessment

A radioactivity impact assessment is not deemed necessary for the proposed mining operation that will not store any chemicals on site, perform activities of radioactive nature or generate hazardous waste of radioactive nature.

- Traffic Impact Assessment (TIA):

Access to the proposed mining area will be via the R39, making use of the new internal/haul roads to access the mining area. Haul roads will be extended as the open cast mining progress, and will be rehabilitated as part of the final reinstatement of the area. Trucks delivering the materials to the destinations will take the R39 provincial route. In light of the small scale of the proposed operation a TIA is not deemed necessary, should the Applicant implement the mitigation measures to be proposed in the EMPR.

- Geotechnical Assessment:

No reason for a geotechnical assessment could be identified as no permanent infrastructure will be established at the proposed mining area, and mining will not create a deep void with high faces.

- Geohydrological Impact Statement

As per Geohydrological Impact Statement (Appendix M5), the Geological map of the area can be concluded that the area is characterised by low permeability lithology such as shale, sandstone and associated dolerite intrusive rocks, which indicate that the underlaying Geology has a low probability for groundwater contamination, however as the expected quarry will be 35 meters deep with the possibility to go deeper the potential of the mining activity to influence the groundwater and cause groundwater pollution exists if mitigation measures are not implemented and managed correctly.

Therefore, from a Geohydrological perspective taking Geology into account, it can be concluded that the probability of the proposed mining influencing the Groundwater in the area is high irrespective of the low permeability of the geology and the expected low groundwater vulnerability. This is mainly due to the shallow groundwater table and aquifer type. It is important to note that precautionary measures should be taken to assure that groundwater from the mining activity is not contaminated. Please refer to (Appendix M5) for the full report.

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- Socio-economic Assessment (SEA):

Based on the findings of the desktop Screening of the Social Impact Statement (Appendix M3), the proposed development is expected to have an overall positive impact at a municipal and local level. From a social perspective, no fatal flaws have been identified for the development and operation of an aggregate quarry at the proposed site. The quarry must employ mitigation measures to reduce impacts that will impact the areas 'sense of place', as perceived by the residents in the immediate surroundings, and agricultural activities. The Applicant must ensure, through consultation with the relevant municipal officials, that the development is in line with the municipal spatial planning. It must be noted that this statement is in the form of an 'Social Impact Opinion' which has been based solely on a desktop assessment and a limited review of available information.

According to the Economic Opinion (Appendix M4) It is evident that the proposed mining project will generate both positive and negative impacts during the operational period. The following paragraphs and tables summarise the key economic impacts that were identified to have the potential to occur (please table 3.1 in the Economic Opinion Statement). The net positive impacts associated with the development and operation of the proposed mining project are expected to outweigh the net negative effects. The project is also envisaged to have a positive stimulus on the local economy and employment creation, leading to the economy's diversification and a small reduction in the unemployment rate. The negative economic impact that will need to be addressed is the fact that the proposed project is planned to operate 24 hours a day, this will have an impact on nearby residents and disturbing livestock in close vicinity leading to a negative economic impact. It is important to note that the economic opinion of the proposed mining project is based on available information and not a full economic impact assessment

- Visual Impact Statement

The overall Visual Impact of the proposed development will be low given the low visual exposure thereof. It must be noted that the quarry will be situated within the rural landscape and is predominantly surrounded by Agricultural Farmland. The highest visual impact will occur from the R39 as it is situated adjacent to the proposed development; however, the visual impact will be temporary as motorists will only traverse through the area. The proposed development will be in line with the sense of place as Ermelo is a well-known mining town. The following mitigation measures can be considered in order to minimise the visual impact even further:

- A visual screen of Searsia pyroides can be planted which takes three (3) weeks to germinate. These trees grow very quickly and occur throughout South Africa;
- The quarry must be managed appropriately to ensure that stockpiled heaps are not stored for excessive periods;
- Housekeeping throughout the mining area must be managed appropriately;

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- Rehabilitation must be done according to the rehabilitation plan of the mine; and,
- Avoid shiny materials in structures. Where possible shiny metal structures should be darkened or screened to prevent glare.