



Ref No: NC 30/5/1/1/3/2/

PR

Middelwater Exploration Co (Pty) Ltd
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Paarl
7646
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BACKGROUND INFORMATION DOCUMENT

To whom it may concern

17 August 2018

RE: NOTICE OF AN APPLICATION IN TERMS OF SECTION 16 OF THE MINERALS AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (ACT NO 28 OF 2002) AND THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO 107 OF 1998 NEMA) AS WELL AS THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS OF 2014 (AS AMENDED BY GNR 326 EFFECTIVE 7 APRIL 2017).

Middelwater Exploration Co (Pty) Ltd intends to apply for a prospecting right on the farm Middelwater 18, portion 0 (also known as remaining extent) Siyathemba Local Municipality, Pixley Ka Seme District Municipality, Prieska Administrative District, Northern Cape Province.

SITE DESCRIPTION

The farm Middelwater 18 is situated approximately 33 km North-West of Prieska, Northern Cape Province, adjacent to the Orange River. The commodity of interest is Beryllium, Cobalt, Copper, Feldspar, Gold, Iron Ore, Lead, Lithium, Manganese, Mica, Nickel, Silver, Tantalum, Tin, Tungsten, Uranium and Zinc.

LEGAL COMPLIANCE

An application for a prospecting right in terms of Section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) [MPRDA] will be submitted to the Department of Mineral Resources (DMR).

The proposed project triggers the following listed activities in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) [NEMA] and the Environmental Impact Assessment (EIA) Regulations (as amended by GNR 326 effective 7 April 2017), and therefore requires a basic assessment process to obtain environmental authorisation:

the goal isn't to live forever, it is to protect a planet that will



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■ GNR 327 Environmental Impact Assessment Regulations Listing Notice 1 of 2017 Activity 20:

Any activity including the operation of that activity which requires a prospecting right in terms of Section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including —

(a) associated infrastructure, structures and earthworks, directly related to the prospecting of a mineral resource [.,]; or [including activities for which an exemption has been issued in terms of section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)]

(b) the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing;

but excluding the secondary processing of a mineral resource, including the smelting, beneficiation, reduction, refining, calcining or gasification of the mineral resource in which case activity 6 in Listing Notice 2 applies.

Other legislation triggered by the proposed project includes:

- An application for a Prospecting Right in terms of Section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) has been submitted to the Department of Mineral Resource.

PROJECT DESCRIPTION

The proposed prospecting area is a natural area. The planned activities for the proposed site's is detailed below. All activities will be contained within the boundaries of the site.

DESCRIPTION OF PLANNED NON-INVASIVE ACTIVITIES:

(These activities do not disturb the land where prospecting will take place, e.g. aerial photography, desktop studies, aeromagnetic surveys, etc)

Phase 1 (month 0 to 6), phase 3 (months 15 to 27) and phase 4 (months 30 to 36)

■ Desktop Studies

Desktop studies form a very important preparatory step in a new exploration project, and as the name suggests, this task is executed mainly from an office environment. Desktop studies will be conducted by the project geologist as part of preliminary investigations into the prospecting area by looking at all relevant published literature, geological maps, mining maps and any available evidence or records of findings. The outcome of the desktop studies will be a geological report of the prospecting area with a particular emphasis on the prospectively of the area. This report will also inform other subsequent prospecting steps.



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■ Spatial Database Compilation

Spatial information will be compiled into a GIS database for access, correlation and evaluation. The GIS system will be used and maintained for the period of the prospecting right exploration program and regularly updated as new information is generated by the exploration program.

■ Land Survey

All spatial information accessed and collected in the field will be standardized using the WGS84 datum.

■ Remote Sensing

As part of the initial review, public domain aerial photos will be acquired and a detailed geological and structural interpretation will be done on these to aid in identifying target areas that are not readily evident on the ground and to provide an independent interpretation of the geology of the area. Satellite imagery will also be acquired to provide a more regional viewpoint of the area of interest. As before a detailed geological and structural interpretation will be done on these images to provide a more regional viewpoint on the target areas. Satellite imagery is used to complement the aerial photos interpretations as the combination of multi-spectral bands can be used to highlight certain lithology's, vegetation types, soil types, alteration minerals, etc.

■ Geophysical survey to be undertaken

Both airborne and ground geophysical surveys may be undertaken for the prospecting right area, depending on the results of the desktop study. A small airborne magnetic/radiometric survey may be carried out over the prospect and surrounding areas to map the structural geology of the area. Follow up ground geophysical surveys will be carried out on coincident targets from the compilation of geological and geophysical data. These surveys may include ground gravity, ground electromagnetics, IP and controlled source audio magnetotellurics (CSAMT).

Field geological studies will follow after the desktop studies, and they typically include walking over the prospecting area making general observations of the geology and topography. Geological mapping activities, if terrain is suitable, may include detailed outcrop mapping, identification of iron ore hosting strata, iron ore seam outcrop mapping and sampling of exposed iron ore seams where available.

The 3D geological modelling and resource estimation step will follow after favourable exploration drilling results. This geological modelling step mainly entails geological interpretation of collected log sheet data and the subsequent geological domain. The geological model, which shows the physical continuity of the iron ore seams and the distribution of the iron ore qualities, is a critical input in iron ore resource estimation. The iron ore resource statement, which is an outcome of the resource estimation process, gives an indication of the amount of available iron ore resources in tonnage and associated qualities.



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DESCRIPTION OF PLANNED INVASIVE ACTIVITIES:

(These activities result in land disturbances e.g. sampling, drilling, etc.)

Phase 2 (month 6 to 15) and phase 4 (months 27 to 30)

Drilling:

The exact location where drilling will be carried out will be determined by the results of geophysical and geological work carried out in Phase 1 of the prospecting programme. It will be assumed that a drill hole will be located in intervals of 350 meters (measured resource as per SAMREC code). The initial holes will be drilled on the Prospecting area that forms part of this application. All drill holes will be approved by the team's environmental manager prior to approval thereof. The environmental management plan related to this project will consider environmental sensitivities and advise on the location of drilling holes. By the quarter of exploration, there will be clearly defined targets that will warrant testing by diamond, reverse circulation or percussions drilling. It is envisaged that a combination of HQ (63.5 mm) and NQ (47.63 mm) drilling will be used to drill targets. The core will be logged, cut and sampled at a core yard to be located near the prospecting site. The samples will be crushed and milled and then analysed at an accredited laboratory in for iron ore quality. The resultant drill holes will be cased and capped to make it safe for people and animals, and also allow for future access by the exploration team.

MAIN PROSPECTING ACTIVITIES:

Drill site establishment:

A drill site of approximately 400 m² will be established that will require:

- Clearing of vegetation for sumps and the drill entrance point;
- Earth sumps for water recycling;
- Laydown area for drill rods, fuel and chemical storage;
- Chemical toilets.

Drilling and removal of geological cores:

Drilling a hole of approximately 110 mm in diameter and removing of rock core. Number of boreholes will be finalised once non-invasive prospecting is completed.

Casing of boreholes:

1m² per borehole.

Rehabilitation of drill sites.



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DESCRIPTION OF PRE-/FEASIBILITY STUDIES:

(Activities in this section include but are not limited to: initial geological modelling, resource determination, possible future funding models, etc.)

The pre-/feasibility studies team will comprise of a diverse team of technical expertise in the field of mineral projects, including, geologists, mining engineers, metallurgical engineers, civil engineers, mechanical engineers, environmental scientists, marketing professionals and mineral project finance professionals. The list of activities under pre-/feasibility studies includes the following:

- Geological modelling and resource estimation;
- Iron Ore reserve estimation;
- Mine design and scheduling;
- Metallurgical processing;
- Market development;
- Infrastructure design
- Engineering development
- Human resourcing
- Project development and operational costing

The mining site will contain the following:

- Surveying Equipment;
- Drilling equipment;
- Geophysical logging equipment;
- Field Vehicles;
- Sample Analysis equipment; and
- Other relevant field equipment.

BIOPHYSICAL DESCRIPTION

CLIMATE:

According to SA Explorer, Prieska normally receives about 132mm of rain per year, with most rainfall occurring mainly during autumn. The chart below (lower left) shows the average rainfall values for Prieska per month. It receives the lowest rainfall (0mm) in June and the highest (38mm) in March. The monthly distribution of average daily maximum temperatures (centre chart below) shows that the average midday temperatures for Prieska range from 17.9°C in June to 32.7°C in January. The region is the coldest during July when the mercury drops to 1.3°C on average during the night. Consult the chart below (lower right) for an indication of the monthly variation of average minimum daily temperatures.

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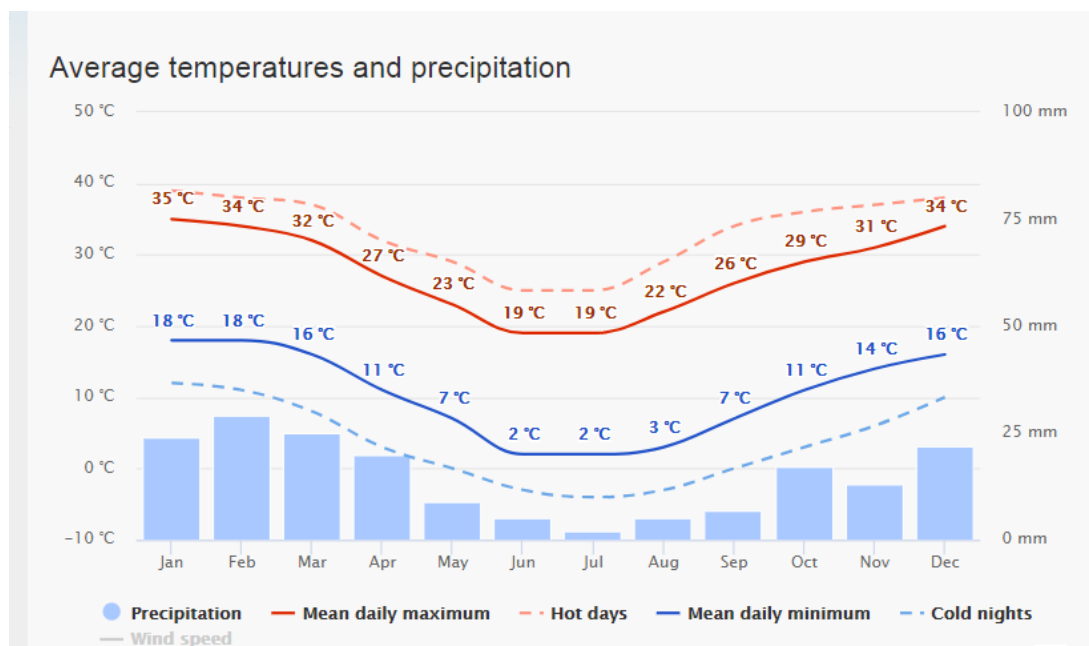


Figure 1: Average rainfall and Temperature for Prieska

GEOLOGY & SOILS:

The Prieska/Marydale region is historically known for copper mineralization. The area includes the Copperton deposit that was discovered during the 1960's. This deposit was explored by Anglovaal and proved to have an ore reserve of 47 Mt (to a depth of 900m). The ore body was exploited between 1972 and 1991 and an average grade of 1,11% Cu and 2,62% zinc was extracted during this period.

A number of other copper deposits, including the Witkop (Cu-Zn-Ag-Au) property to the southwest of Marydale, is also present in the area. This specific deposit was explored and was subsequently purchased by the Australian company Orion Gold (Marydale Project).

Within this metallogenic terrain with a high density of copper occurrences, a copper gossan was discovered during a regional diamond exploration program that was conducted in the area during the 1990's. At the time, base metal mineralization was of no interest and the only reason for the identification of the copper mineralization was the fact that the gossan was visible below an alluvial diamond sequence sidewall cutting. Out of curiosity a grab sample was taken of this material and the sample subsequently returned an exceptionally high copper content of 35%. Because of the diamond priority of the program this result was never followed up.

Although the mineralised outcrop is small (1m x 2m), this occurrence is exceptional in that it is only exposed within a vertical river cutting, but also overlain by extensive fluvial gravels that blankets the lateral extent of the mineralization. Even though geological uncertainty exists the potential monetary value at such a high-grade occurrence is substantial.



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Soils can be identified as lithosols, shallow soils on hard weathering rock.

Management:

- Activity should be limited to area of disturbance. Where required the compacted soils should be disked to an adequate depth and re-vegetated with indigenous plants.
- All vehicles will be regularly serviced to ensure they are in proper working condition and to reduce risk of leaks. All leaks will be cleaned up immediately using an absorbent material.
- Ensure activities occur only within the designated areas and stockpile and revegetated soil as soon as possible.

SURFACE AND GROUND WATER:

The environmental impact assessment will identify water resources within the proposed footprint area, and prescribe no-go buffer areas to be managed throughout the invasive phase of the proposed prospecting activity. Orange River runs north of the proposed prospecting area boundaries. The proposed site falls within the Lower Vaal Water Management Area (WMA), specifically in the Orange Sub Water Management Area.

Management:

- Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a reputable manner. For large spills Hazmat will be called in.
- All vehicles will be regularly serviced to ensure they are in proper working condition and to reduce risk of leaks. All leaks will be cleaned up immediately using an absorbent material.
- Ensure water management facilities are operating adequately. Clean out silt build up over dry season.
- Monitor area for erosion and pooling and rehabilitate if necessary. Continue with Surface water monitoring.
- Portable toilets will be managed by reputable contractors and inspected daily for potential leaks
- Waste generated on site should be recycled as far as possible and sold/ given to interested contractors. Recycled waste should not be stored on site for excessive periods to reduce risk of environmental contamination. Refuse bins will be placed around site to collect all non-recycle waste for disposal at the municipality.
- Rigs will be regularly serviced to reduce risk of leaks. Pans will be placed under potential leak sites. Any leakages should be reported and treated as per the emergency response plan. For large spills a hazardous materials company will be called in.

SENSITIVE LANDSCAPES:

There are no protected areas (game parks/ nature reserves or monument) in close proximity to the proposed site. The proposed prospecting area lies adjacent to the Orange River. This area will be classified as a sensitive area.



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Management:

- Pans and artificial watering points must be cordoned off with at least 100m horizontal distance buffer zones and no activity is to take place within these areas. Consideration should be given to create alternative watering point if existing artificial water point will be disturbed.

AIR QUALITY:

Possible sources of atmospheric emissions associated with the prospecting operation are likely to include fugitive dust from drilling and vehicle entrainment of gravel roads.

Management:

- Speed on the access road will be limited to 30 km/h to prevent the generation of excess dust.
- Roads will be sprayed with water or an environmentally friendly dust-allaying agent that contains no PCB's (e.g. DAS products) if dust is generated above acceptable limits.
- All vehicles will be regularly serviced to ensure they are in proper working condition and to reduce the risk of excessive emissions.

NOISE:

Management:

- Vehicles will be regularly serviced to ensure acceptable noise levels are not exceeded.
- All mining vehicles will be equipped with silencers and maintained in a road worthy condition in terms of the Road Transport Act.
- It will be ensured that employees and staff conduct themselves in an acceptable manner while on site.
- Screens will be considered if I&AP complaints are received.

FLORA:

The foremost part of the prospecting area comprises of natural vegetated areas representative of the Nama Karoo Biome, specifically the Northern Upper Karoo (NKu3). Shrubland dominated by dwarf karoo shrubs, grasses and *Accacia melifera* subsp . *detinens* and some other low trees (especially on sandy soils in the north parts and vicinity of the orange river). Flat to gently sloping, with isolated hills of upper karoo hardeveld in the south and vaalbos rocky shrub land in the northeast and with many interspersed pans.

The dominant vegetation is a grassy, dwarf shrubland. Grasses tend to be more common in depressions and on sandy soils, and less abundant on clayey soils. Grazing rapidly increases the relative abundance of shrubs. Most of the grasses are of the C4 type and, like the shrubs, are deciduous in response to rainfall events.

Less than 1% of the biome is conserved in formal areas. The Prickly Pear *Opuntia aurantiaca* and Mesquite *Prosopis glandulosa* are the major alien invader species. Urbanization and agriculture are minimal, and irrigation is confined to the Orange River valley and some pans.



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Most of the land is used for grazing, by sheep (for mutton, wool and pelts) and goats, which can be commensurate with conservation. However, under conditions of overgrazing, many indigenous species may proliferate, including Threethorn *Rhigozum trichotomum*, Bitterbos *Chrysocoma ciliata* and Sweet Thorn *Acacia karroo*, and many grasses and other palatable species may be lost. There are very few rare or Red Data Book plant species in the Nama Karoo Biome.

The drill sites will necessitate the removal of small amounts of indigenous vegetation per site. The environmental impact assessment will investigate the presence of sensitive vegetated areas within the proposed prospecting footprint, and advise on the position of the drill sites in order to minimise the impact of the activity on the receiving natural environment.

Management:

- Ensure permits are obtained to remove protected species. Relocate all protected species with aid of specialists. Only remove species in areas designated for activity and do not disturb surrounding areas.
- Rehabilitate disturbed areas with natural indigenous flora. Monitor for cover abundance.
- Eradicate and control all alien invasive species on site. Rehabilitate and revegetated all areas where alien invasive species were removed.

FAUNA:

The large historical herds of Springbok and other game no longer exist. Like the many bird species in the area - mainly larks - the game was probably nomadic between patches of rainfall events within the biome. The Brown Locust and Karoo Caterpillar exhibit eruptions under similarly favourable, local rainfall events, and attract large numbers of bird and mammal predators. The fauna at the site will not be impacted by the proposed mining activity as they will be able to move away or through the site, without being harmed. Workers should be educated and managed to ensure that no fauna at the site is harmed.

Management:

- Relocate larger animals with the aid of specialists. Ensure relevant permits are in place.
- Pans and artificial watering points must be cordoned off with at least 100m horizontal distance buffer zones and no activity is to take place within these areas. Consideration should be given to create alternative watering point if existing artificial was to be created.

SITES OF ARCHAEOLOGICAL AND CULTURAL INTEREST:

A heritage specialist will conduct a Heritage Impact Assessment of the proposed footprint area to determine the presence of site of archaeological or cultural importance to be conserved throughout the operational phase of the activity. The prospecting operations' site will move or the allocated drill hole moved if a grave or archaeological site is encountered.



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Management:

- Should artefacts archaeological items be observed, then all activity should cease immediately, the area marked off and a specialists consulted prior to any further activity.
- Should graves be observed on site during activity progress then all activity should have ceased and the area demarcated as a no-go zone. A specialist will need to be consulted and responsible action considered, whether grave relocation or ceasing activity completely within the area and 50m buffer zone.

ACCESS ROUTE:

The site can be accessed via the N10 from Uppington to Prieska, where after a gravel unnamed road can be taken north towards the site. The existing farm roads/tracks will be used as far as practically possibly. No additional roads are foreseen to be constructed.

Management:

- Informal roads already exist on site and no new roads will be constructed. Vehicular movement will be restricted to existing access routes to prevent crisscrossing of tracks through undisturbed areas.
- Should any other access roads to the mining area be required it will be established in consultation with the landowner however existing roads will be used as far as practicable.
- All intersections with main tarred roads will be clearly signposted. drivers will be enforced to keep to set speed limits. Trucks will be road-worthy condition with reflective strips.
- A fund will be set aside to maintain the serviceability of the road verge where the trucks approach or depart from the main road.

EXISTING INFRASTRUCTURE:

- The existing infrastructure, such as housing, power lines, roads etc. within the footprint of the proposed prospecting area will be accommodated and no drill sites will require the demolition/removal of existing infrastructure.
- Further to the above, the applicant will contain all activities to the 400 m² boundaries of each drill site.

VISUAL EXPOSURE:

The mining area was identified to constitute the lowest possible visual impact on the surrounding environment. Please note that prospecting will be done, so the sites of interest will be small and will be viewable from different areas.

The proposed prospecting footprint falls within a natural area. In light of this the invasive activities associated with the proposed prospecting project will impact the aesthetics of the study area at the location of each drill site.



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Management:

- The applicant should however ensure that housekeeping is managed to standard, as this will mitigate the visual impacts during the operational phase of the mine.
- Upon closure the site will be rehabilitated and sloped to insure that the visual impact on the aesthetic value of the area is kept to a minimum.
- The site will have a neat appearance and be kept in good condition at all times.

ABLUTION, WASTE WATER & WASTE DISPOSAL:

- Ablution facilities will consist of chemical toilets hired from a contractor and serviced regularly.
- Any effluents containing oil, grease or other industrial substances will be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognised facility.
- Spills would be cleaned up immediately to the satisfaction of the Regional Manager by removing the spillage together with the polluted soil and by disposing of them at a recognised facility.
- No mining waste will be generated. General waste will be disposed at the authorised Driefontein Disposal facility.
- Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., will be stored in a container at a collecting point and collected on a regular basis and disposed of at a recognised landfill site.
- Biodegradable refuse generated will be handled as indicated above.
- No waste will be burned or buried on site.

FINAL REHABILITATION:

- Progressive rehabilitation will entail the ongoing reinstatement of drilled sites during the invasive phase of the project.
- Upon final rehabilitation, all infrastructures, equipment, and other items used during the prospecting period will be removed from the prospecting footprint (Section 44 of the MPRDA).
- Waste material of any description, including receptacles, scrap, rubble and tyres, will be removed entirely from the prospecting area and disposed of at a recognized landfill facility. It will not be permitted to be buried or burned on the site.
- The environmental management programme to be approved for the project will prescribe the rehabilitation objectives to be implemented both during progressive rehabilitation as well as the final closure of the prospecting area. Final rehabilitation shall be completed within a period specified by the Regional Manager.
- Rehabilitation of the surface area shall entail landscaping, levelling, top dressing, land preparation, seeding (if required), and weed / alien clearing.
- Weed / Alien clearing will be done in a sporadic manner during the life of the mining activities. Species categorised as weeds according to the National Environmental Management: Biodiversity Act (Act No. 10 of 2004) [NEMBA] Alien and Invasive Species Regulation GNR 598 and 599 of 2014 Species regarded as need to be eradicated from the site on final closure.



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- Final rehabilitation shall be completed within a period specified by the Regional Manager.

Middelwater Exploration Co (Pty) Ltd will make use of temporary infrastructure during the mining operations. Workers will be transported to and from the site daily.

PUBLIC INVOLVEMENT

This document is to inform you about the proposed activity and to determine whether there are any concerns or objections from Interested and Affected Parties (I&AP's) that need to be considered.

As an Interested and Affected Party you are kindly requested to complete the comments form and give any comment, concern or input with regard to the current land use of the area, the environment as well as socio-economic conditions that you feel might be affected by the proposed activity. When submitting response please provide suggestions to mitigate the anticipated impact of each identified activity.

Please contact Yolandie Coetzee at the contact details as presented in the letterhead or at yolandie.c@greenmined.co.za through any means should you need more information, have concerns or comments that need to be considered or if you want to be registered as an interested and / or affected party and would like to receive a copy of the Draft Basic Assessment Report (DBAR) on or before **17th September 2018**. If we do not receive any comments from you within 30 days of receipt of this notice, it will be accepted that you do not have any objections / comments with regard to the project.

A register of interested and affected parties (I&AP's) will be opened and maintained containing the names, contact details and address of all persons who have submitted written comments, attended meetings or have in writing requested to be registered and all organs of state which have jurisdiction in respect of the activity.

Please note that only registered I&AP's and stakeholders will be entitled to comment on reports and plans to be submitted to the Department provided that the party provide its name, contact details and address and discloses any direct business, financial, personal or other interest which he / she may have in the approval or refusal of the applications.

The DBAR will be submitted to the Department of Mineral Resources (DMR), Mpumalanga, for review purposes. This report will also be made available to the public for a 30 days' review period. An electronic copy of the report will be published on the Greenmined Environmental website (www.greenmined.com)

The DBAR will then be updated to reflect the comments received during the public commenting period. Upon which, the Final Basic Assessment Report (FBAR) will be submitted to the DMR for its consideration as part of the authorization process in terms of the NEMA regulation. A copy of the final report will be made available on the Greenmined Environmental website (www.greenmined.com). All registered I&AP's and stakeholders will be notified in writing within 14 days of the date of the decision of the outcome of the application, including the reasons for the decision and the right of appeal.



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CONTACT DETAILS:

Name/Naam	
Organisation/Instansie	
Interest/Belange	
Postal Address/Pos Adres	
Tel	
Fax/Faks	
E-mail/E-pos	

COMMENTS/ OPMERKINGS:

No Objection:	
Request additional information:	
Concerns:	

Signature: _____



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Are there any other organisations or individuals that you feel should be invited to comment? If so, please provide their contact details:

Contact name:
Organisation (if applicable):
Address:
Tel:
Fax
E-mail

Contact name:
Organisation (if applicable):
Address:
Tel:
Fax
E-mail

Your feedback is valued and will be addressed appropriately.

Kind Regards

A handwritten signature in black ink, appearing to read 'Yolandie Coetzee'.

Yolandie Coetzee
Greenmined Environmental