

**PROPOSED MINING OF AGGREGATE ON THE REMAINING  
EXTENT OF THE FARM BLOEMHOF 14, MAGISTERIAL  
DISTRICT PARYS, FREE STATE PROVINCE**

**FINAL SCOPING REPORT**

**JUNE 2018**



**REFERENCE NUMBER: FS 30/5/1/2/2/10045 MR**

**PREPARED FOR:**

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## ABBREVIATIONS

|             |   |
|-------------|---|
| BID         | Background Information Document   |
| DSR         | Draft Scoping Report  |
| FSR         | Final Scoping Report  |
| DEAT        | Department of Environment, Agriculture and Tourism                                |
| DMR         | Department of Mineral and Resources   |
| DWS         | Department of Water and Sanitation  |
| EAP         | Environmental Assessment Practitioner   |
| EIA         | Environmental Impact Assessment   |
| EMP         | Environmental Management Plan   |
| EMPR        | Environmental Management Programme  |
| EA          | Environmental Authorisation   |
| EAP         | Environmental Assessment Practitioner   |
| ECO         | Environmental Control Officer   |
| FSR         | Final Scoping Report  |
| FS          | Free State Province   |
| GN          | Government Notice   |
| GNR         | Government Notice Regulation  |
| I&AP's      | Interested and Affected Parties   |
| IWULA/IWMMP | Integrated Water Use Licence Application / Integrated Waste Water Management Plan |
| LED         | Local Economic Development  |
| NEMA        | National Environmental Management Act, Act No. 107 of 1998                        |
| MHSA        | Mine Health and Safety Act, Act No. 29 of 1996                                    |
| MPRDA       | Minerals and Petroleum Resources Development Act, Act No. 28 of 2002              |
| PPP         | Public Participation Process  |
| PPE         | Personal Protective Equipment   |
| Ptn         | Portion   |
| SAHRA       | South African Heritage Resources Agency   |
| SAHRIS      | South African Heritage Resources Information System                               |
| SHE         | Safety, Health and Environmental  |
| SLP         | Social and Labour Plan  |
| WMA         | Water Management Area   |

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## mineral resources

Department:  
Mineral Resources  
REPUBLIC OF SOUTH AFRICA

# SCOPING REPORT

SUBMITTED FOR ENVIRONMENTAL AUTHORIZATION IN TERMS OF THE NATIONAL ENVIRONMENTAL 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).

|                                      |   |
|--------------------------------------|---|
| <b>NAME OF APPLICANT:</b>            | <i>Inzalo Crushing and Aggregates (Pty) Ltd</i>   |
| <b>TEL NO:</b>                       | <i>011 966 4300</i>                               |
| <b>FAX NO:</b>                       | <i>086 612 8117</i>                               |
| <b>POSTAL ADDRESS:</b>               | <i>PO Box 26730, East Rand, Kempton Park</i>      |
| <b>PHYSICAL ADDRESS:</b>             | <i>93 – 94 Maple Street, Pomona, Kempton Park</i> |
| <b>FILE REFERENCE NUMBER SAMRAD:</b> | <i>FS 30/5/1/3/2/1/10045MR</i>                    |

## IMPORTANT NOTICE

In terms of the Mineral and Petroleum Resources Development Act (Act 29 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 can 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 a 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.

- 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.



## SCOPING REPORT

### 2. Contact Person and correspondence address

#### a) Details of:

##### i. The EAP who prepared the report

Name of the Practitioner: Greenmined Environmental  
Yolandie Coetzee  
Tel No.: 011 966 4390 / 082 734 5113  
Fax No.: 086 546 0579  
E-mail address: yolandie.c@greenmined.co.za

##### ii. Expertise of the EAP

###### (1) The qualifications of the EAP

(with evidence attached as Appendix 1).

Mrs. Yolandie Coetzee has a B.Sc. Degree in Microbiology and Biochemistry and an Honours Degree in Environmental Sciences. Please find full CV attached in Appendix 1.

###### (2) Summary of the EAP's past experience.

(Attached the EAP's curriculum vitae as Appendix 2)

Yolandie Coetzee is an Environmental Consultant with 7 years' experience in the environmental sector. She specialized the last 5 years in the rehabilitation of mines where she conducted the conceptual rehabilitation and management designs and the closure plans and programs. She has also been involved in a number of other environmental projects including railway sidings, filling stations, abattoir's, logistics hub and mining sites where she compiled environmental management plans, environmental impact assessments, environmental audits, due diligences, IWULA's / IWWMP's and alien invasive encroachment programs. She studied at the University of Potchefstroom where she has successfully completed her undergraduate degree in microbiology and biochemistry and her Honours degree in environmental sciences. See a list of past project attached as Appendix 1.

**b) Description of the property.**

|   |   |
|---|---|
| <b>Farm Name:</b>   | Remaining extent of the farm Bloemhof 14, Parys, Free State Province. |
| <b>Application area (Ha)</b>                                | 25.4ha  |
| <b>Magisterial district:</b>                                | Parys   |
| <b>Distance and direction from the nearest town</b>         | Situated approximately 75 km North of Kroonstad Free State Province   |
| <b>21 digit Surveyor General Code for each farm portion</b> | F02500000000001400000   |

**c) Locality map**

(show nearest town, scale not smaller than 1:250000 attached as Appendix 3).

The requested map is attached as Appendix 4.

**d) Description of the scope of the proposed overall activity.**

Provide a plan drawn to a scale acceptable to the competent authority but not less than 1:10 000 that shows the location, and area (hectares) of all aforesaid main and listed activities, and infrastructure to be placed on site and attached as **Appendix 4**

Inzalo Crushing and Aggregates (Pty) Ltd intends to apply for a Mining Right to mine 25.4ha of the remaining extent of the farm Bloemhof 14, which falls in the Parys Administrative District, Free State Province.

The area earmarked for the proposed mining falls on a section of the farm that was previously used as an existing quarry and the intention of this application is to increase the existing quarry. The mining methods will make use of blasting means of explosives in order to loosen the hard rock, the material is then loaded and hauled out of the excavation to the mobile crushing and screening plants. The aggregate will be stockpiles and transported to clients via trucks and trailers. All activities will be contained within the boundaries of the site.

The proposed mining area is approximately 25.4ha is extent and the applicant, Inzalo Crushing and Aggregates (Pty) Ltd, intends to win material from the area for at least 20 years. The aggregate / stone gravel to be removed from the quarry will be used for road construction in the vicinity. The proposed quarry will therefore contribute to the upgrading / maintenance of road infrastructure in and around the Koppies / Parys area.

The mining activities will consist out of the following:

- Stripping and stockpiling of topsoil;
- Blasting;
- Excavating;
- Crushing;
- 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; and
- Mobile crushing and screening plants.

A generator will be used to power the infrastructure on site until an Eskom connection can be secured. Water from the existing pit will be pumped out of the quarry and reused for mineral processing and dust suppression. See the requested map attached as Appendix 6.

There is an Eskom servitude (Parys Rural TVL 11kV) located approximately 350m south-east of the proposed mining area. This servitude area will not be impacted by the mining right activities on site.

**i. Listed and specified activities**

| <b>NAME OF ACTIVITY</b><br><b>(E.g. For prospecting – drill site, site camp, ablution facilities, accommodation, equipment storage, sample storage, site office, access route etc... etc... etc</b><br><br><b>E.g. for mining – excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)</b> | <b>Aerial extent of the activity</b><br><b>Ha or m<sup>2</sup></b> | <b>LISTED ACTIVITY</b><br><b>Mark with an X where applicable or affected</b> | <b>APPLICABLE LISTING NOTICE</b><br><b>(GNR 324, GNR 325, GNR 326 OR GNR 327)</b> |
|--|--|--|---|
| Demarcation of site with visible beacons   | 25.4ha   | N/A  | Not listed  |

| <p><b>NAME OF ACTIVITY</b><br/>(E.g. For prospecting – drill site, site camp, ablution facilities, accommodation, equipment storage, sample storage, site office, access route etc... etc... etc</p> <p><b>E.g. for mining –</b> excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)</p> | <p><b>Aerial extent of the activity</b><br/>Ha or m<sup>2</sup></p> | <p><b>LISTED ACTIVITY</b><br/>Mark with an X where applicable or affected</p> | <p><b>APPLICABLE LISTING NOTICE (GNR 324, GNR 325, GNR 326 OR GNR 327)</b></p>  |
|---|---|---|---|
| <p>Establishment Of Temporary Buildings And Infrastructure Within Boundaries Of Site.</p>   | <p>120 000m<sup>2</sup></p>   | <p>N/A</p>  | <p>Not listed</p>   |
| <p>Strip and Stockpile of topsoil</p>   | <p>25.4ha</p>   | <p>X</p>  | <p><u>GNR 325 Environmental Impact Assessment Regulations Listing Notice 2 of 2014 Activity 17 (Mining Right area):</u></p> <p><i>Any activity including the operation of that activity which requires a mining right in terms of section 22 of the Mineral and Petroleum Resources Development Act, 2002 (act No. 28 of 2002), including associated infrastructure, structures and earthworks directly related to the extraction of a mineral resource or 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 this Notice applies.</i></p> <p><u>GNR 327 Environmental Impact Assessment Regulations Listing Notice 1 of 2017 Activity 22:</u></p> <p><i>The decommissioning of any activity requiring –</i></p> <p><i>(i) a closure certificate in terms of section 43 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002); or</i></p> |

| <p><b>NAME OF ACTIVITY</b><br/>(E.g. For prospecting – drill site, site camp, ablution facilities, accommodation, equipment storage, sample storage, site office, access route etc... etc... etc</p> <p><b>E.g. for mining –</b> excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)</p> | <p><b>Aerial extent of the activity</b><br/><b>Ha or m<sup>2</sup></b></p> | <p><b>LISTED ACTIVITY</b><br/><b>Mark with an X where applicable or affected</b></p> | <p><b>APPLICABLE LISTING NOTICE (GNR 324, GNR 325, GNR 326 OR GNR 327)</b></p>  |
|---|--|--|---|
|   |  |  | <p><i>(ii) a prospecting right, mining right, mining permit, production right or exploration right, where the throughput of the activity has reduced by 90% or more over a period of 5 years excluding where the competent authority has in writing agreed that such reduction in throughput does not constitute closure;</i></p> <p><i>but excluding the decommissioning of an activity relating to the secondary processing of a –</i></p> <p><i>(a) mineral resource, including the smelting, beneficiation, reduction, refining, calcining or gasification of the mineral resource; or</i></p> <p><i>(b) petroleum resource, including the refining of gas, beneficiation, oil or petroleum products; –</i></p> <p><i>in which case activity 31 in this Notice applies.</i></p> <p><u>GNR 327 Environmental Impact Assessment Regulations Listing Notice 1 of 2017 Activity 27 (Mining Area):</u><br/><i>The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation.</i></p> <p><u>GNR 327 Environmental Impact Assessment Regulations Listing Notice 1 of 2017 Activity 28 (Mining and Stockpile area):</u></p> |

| <p><b>NAME OF ACTIVITY</b><br/>(E.g. For prospecting – drill site, site camp, ablution facilities, accommodation, equipment storage, sample storage, site office, access route etc... etc... etc</p> <p><b>E.g. for mining –</b> excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)</p> | <p><b>Aerial extent of the activity</b><br/><b>Ha or m<sup>2</sup></b></p> | <p><b>LISTED ACTIVITY</b><br/><b>Mark with an X where applicable or affected</b></p> | <p><b>APPLICABLE LISTING NOTICE (GNR 324, GNR 325, GNR 326 OR GNR 327)</b></p>   |
|---|--|--|--|
|   |  |  | <p><i>Commercial and industrial developments where such land was used for agriculture or afforestation on or after 01 April 1998 and where such development (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare.</i></p> <p><u>GNR 327 Environmental Impact Assessment Regulations Listing Notice 1 of 2017 Activity 35 (Mining and Stockpile area):</u></p> <p><i>The expansion of residential, retail, recreational, tourism, commercial or institutional developments on land previously used for mining or heavy industrial purposes, where the increased development footprint will exceed 1 000 square meters; excluding—</i></p> <p><i>(i) where such land has been remediated in terms of part 8 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies; or</i></p> <p><i>(ii) where an environmental authorisation has been obtained for the decommissioning of such a mine or industry in terms of this Notice or any previous NEMA notice; or</i></p> <p><i>(iii) where a closure certificate has been issued in terms of section 43 of</i></p> |

| <p><b>NAME OF ACTIVITY</b><br/>(E.g. For prospecting – drill site, site camp, ablution facilities, accommodation, equipment storage, sample storage, site office, access route etc... etc... etc</p> <p><b>E.g. for mining –</b> excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)</p> | <p><b>Aerial extent of the activity</b><br/><b>Ha or m<sup>2</sup></b></p> | <p><b>LISTED ACTIVITY</b><br/><b>Mark with an X where applicable or affected</b></p> | <p><b>APPLICABLE LISTING NOTICE (GNR 324, GNR 325, GNR 326 OR GNR 327)</b></p>  |
|---|--|--|---|
|   |  |  | <p><i>the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) for such land.</i></p>   |
| <p>Drilling and Blasting</p>  | <p>10ha / 100 000m<sup>2</sup></p>   | <p>X</p>   | <ul style="list-style-type: none"> <li>■ GNR 325 Environmental Impact Assessment Regulations Listing Notice 2 of 2014 Activity 17 (Mining Right area); and</li> <li>■ GNR 327 Environmental Impact Assessment Regulations Listing Notice 1 of 2017 Activity 22; Activity 27 (Mining Area): Activity 28 (Mining and Stockpile area); Activity 35 (Mining and Stockpile area).</li> </ul> |
| <p>Excavation And Loading Of Aggregates To Be Processed</p>   | <p>10ha / 100 000m<sup>2</sup></p>   | <p>X</p>   | <ul style="list-style-type: none"> <li>■ GNR 325 Environmental Impact Assessment Regulations Listing Notice 2 of 2014 Activity 17 (Mining Right area); and</li> <li>■ GNR 327 Environmental Impact Assessment Regulations Listing Notice 1 of 2017 Activity 22; Activity 27 (Mining Area): Activity 28 (Mining and Stockpile area); Activity 35 (Mining and Stockpile area).</li> </ul> |
| <p>Crushing and screening of aggregates</p>   | <p>1ha</p>   | <p>X</p>   | <ul style="list-style-type: none"> <li>■ GNR 325 Environmental Impact Assessment Regulations Listing Notice 2 of 2014 Activity 17 (Mining Right area); and</li> <li>■ GNR 327 Environmental Impact Assessment Regulations Listing Notice 1 of 2017 Activity 22; Activity 27 (Mining Area): Activity 28 (Mining and Stockpile area); Activity 35 (Mining and Stockpile area).</li> </ul> |



| <b>NAME OF ACTIVITY</b><br><b>(E.g. For prospecting – drill site, site camp, ablution facilities, accommodation, equipment storage, sample storage, site office, access route etc... etc... etc</b><br><br><b>E.g. for mining – excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)</b> | <b>Aerial extent of the activity</b><br><b>Ha or m<sup>2</sup></b> | <b>LISTED ACTIVITY</b><br><b>Mark with an X where applicable or affected</b> | <b>APPLICABLE LISTING NOTICE (GNR 324, GNR 325, GNR 326 OR GNR 327)</b>   |
|--|--|--|---|
| Stockpiling and transportation of material from stockpile area to clients  | 6.8ha / 60 000m <sup>2</sup>                                       | X  | <ul style="list-style-type: none"> <li>■ GNR 325 Environmental Impact Assessment Regulations Listing Notice 2 of 2014 Activity 17 (Mining Right area); and</li> <li>■ GNR 327 Environmental Impact Assessment Regulations Listing Notice 1 of 2017 Activity 22; Activity 27 (Mining Area): Activity 28 (Mining and Stockpile area); Activity 35 (Mining and Stockpile area).</li> </ul> |
| Sloping, Landscaping and replacement of topsoil over disturbed area (Final Rehabilitation)   | 25.4ha   |  | <ul style="list-style-type: none"> <li>■ GNR 325 Environmental Impact Assessment Regulations Listing Notice 2 of 2014 Activity 17 (Mining Right area); and</li> <li>■ GNR 327 Environmental Impact Assessment Regulations Listing Notice 1 of 2017 Activity 22; Activity 27 (Mining Area): Activity 28 (Mining and Stockpile area); Activity 35 (Mining and Stockpile area).</li> </ul> |

**iii. Description of the activities to be undertaken**

(Describe Methodology or technology to be employed, and for a linear activity, a description of the rout of the activity)

The proposed mining site will be an extension of the existing quarry pit previously distributed by stone aggregate mining activities. The mining methods will make use of blasting means of explosives in order to loosen the hard rock, the material is then loaded and hauled out of the excavation to the mobile crushing and screening plants. The aggregate will be stockpiles and transported to clients via trucks and trailers. All activities will be contained within the boundaries of the site.



The GPS coordinates of the proposed mining area are as follow:

| Preferred Alternative         |                                    |
|-------------------------------|------------------------------------|
| Decimal Degrees               | Degrees; Minutes; Seconds          |
| ➤ A27.0548894°S; 27.5625444°E | ➤ A27°3'17.6018"S; 27°33'45.1598"E |
| ➤ B27.0513029°S; 27.5650583°E | ➤ B27°3'4.6904"S; 27°33'54.2099"E  |
| ➤ C27.0483198°S; 27.5596529°E | ➤ C27°2'53.9513"S; 27°33'34.7504"E |
| ➤ D27.0502365°S; 27.5575594°E | ➤ D27°3'0.8514"S; 27°33'27.2138"E  |
| ➤ A27.0548894°S; 27.5625444°E | ➤ A27°3'17.6018"S; 27°33'45.1598"E |

**ALTERNATIVE SITE DESCRIPTION**

The following alternative site was assessed for the proposed mining but found not environmentally and practically suitable. The site still has a green status and the natural area will need to be disturbed for the quarry to be established.

| Site Alternative              |                                    |
|-------------------------------|------------------------------------|
| Decimal Degrees               | Degrees; Minutes; Seconds          |
| ➤ A27.05248°S; 27.5601234°E   | ➤ A27°3'8.928"S; 27°33'36.4442"E   |
| ➤ B27.0497502°S; 27.5622447°E | ➤ B27°2'59.1007"S; 27°33'44.0809"E |
| ➤ C27.0518223°S; 27.5660146°E | ➤ C27°3'6.5603"S; 27°33'57.6526"E  |
| ➤ D27.0560016°S; 27.5637109°E | ➤ D27°3'21.6058"S; 27°33'49.3592"E |
| ➤ A27.05248°S; 27.5601234°E   | ➤ A27°3'8.928"S; 27°33'36.4442"E   |

An application for a Mining Right in terms of Section 22 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) [MPRDA] was 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 an environmental impact assessment and environmental management program to obtain environmental authorisation:

- GNR 325 Environmental Impact Assessment Regulations Listing Notice 2 of 2014 Activity 17 (Mining Right area):

*Any activity including the operation of that activity which requires a mining right in terms of section 22 of the Mineral and Petroleum Resources Development Act, 2002 (act No. 28 of 2002), including associated infrastructure, structures and earthworks directly related to the extraction of a mineral resource or 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 this Notice applies.*

■ GNR 327 Environmental Impact Assessment Regulations Listing Notice 1 of 2014 Activity 22 (Mining Area):

*The decommissioning of any activity requiring –*

*(i) a closure certificate in terms of section 43 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002); or*

*(ii) a prospecting right, mining right, mining permit, production right or exploration right, where the throughput of the activity has reduced by 90% or more over a period of 5 years excluding where the competent authority has in writing agreed that such reduction in throughput does not constitute closure;*

*but excluding the decommissioning of an activity relating to the secondary processing of a –*

*(a) mineral resource, including the smelting, beneficiation, reduction, refining, calcining or gasification of the mineral resource; or*

*(b) petroleum resource, including the refining of gas, beneficiation, oil or petroleum products; – in which case activity 31 in this Notice applies.*

■ GNR 327 Environmental Impact Assessment Regulations Listing Notice 1 of 2014 Activity 27 (Mining and Stockpile Area):

*The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation.*

■ GNR 327 Environmental Impact Assessment Regulations Listing Notice 1 of 2014 Activity 28 (Mining and Stockpile area):

*Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or before 01 April 1998 and where such development will occur outside an urban area, where the total land to be developed is bigger than 1 hectare.*

■ GNR 327 Environmental Impact Assessment Regulations Listing Notice 1 of 2014 Activity 35 (Mining and Stockpile area)

*The expansion of residential, retail, recreational, tourism, commercial or institutional developments on land previously used for mining or heavy industrial purposes, where the increased development footprint will exceed 1 000 square meters; excluding—*

*(i) where such land has been remediated in terms of part 8 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies; or*

*(ii) where an environmental authorisation has been obtained for the decommissioning of such a mine or industry in terms of this Notice or any previous NEMA notice; or*

*(iii) where a closure certificate has been issued in terms of section 43 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) for such land.*

Other legislation triggered by the proposed project includes:

- An application for a Mining Right in terms of Section 22 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) has been submitted to the Department of Mineral Resource.

### **Site Establishment / Construction phase:**

During the site establishment phase the applicant have to fence the footprint area and clear the topsoil from the applied area, it should be noted that there is very little topsoil on site.

Upon stripping, the topsoil will be stockpiled along the boundaries of the mining area to be used during the rehabilitation phase. Topsoil stripping will be restricted to the areas to be used for aggregate stockpiling and mining. The complete A-horizon (topsoil – the top 100 – 200 mm of soil which is generally darker coloured due to high organic matter content) will be removed. If it is unclear where the topsoil layer ends the top 300 mm of soil has to be stripped. The topsoil will be stockpiled in the form of a berm alongside the boundary of the mining area where it will not be driven over, contaminated, flooded or moved during the operational phase. The topsoil berm will measure a maximum of 1.5 m high and should be planted with indigenous grass species if vegetation does not naturally establish within 6 months of stockpiling to prevent soil erosion and to discourage growth of weeds. The roots of the grass will also improve the viability of the soil for rehabilitation purposes.

The proposed mining area was previously used for aggregate mining and therefore no construction phase is applicable. The area need to be cleared of topsoil and an access road already exist. The expansion of the quarry pit will be handled as part of the operational phase of the quarry. As the infrastructure are temporary the use of infrastructure and machinery that is either track-based or can be removed without difficulty. Temporary infrastructure to be used in the mining method will entail a temporary weighbridge and chemical toilet, with servicing of vehicles and equipment being done on-site at the workshop and wash bay of the applicant. An on-site office will also be used for all administration purposes relating to the project.

During the site establishment phase the applicant, have to demarcate the boundaries of the site and fence the entire mining area.

The applicant will introduce the processing equipment to the area during the site establishment phase. The equipment to be introduced on site will entail the following:

- Drilling Equipment;
- Excavating Equipment;
- Earth Moving Equipment;
- Crushing and Screening infrastructure;
- Site Office (120m<sup>2</sup>);
- General Waste Area (25 m<sup>2</sup>);
- Hazardous waste storage area (25 m<sup>2</sup>);
- Site vehicles;
- Parking area for visitors and site vehicles;
- Vehicle service area (48 m<sup>2</sup>);
- Wash bay (24 m<sup>2</sup>);
- Workshop (24 m<sup>2</sup>);
- Vehicle Service Area (48 m<sup>2</sup>)
- Salvage Yard (100 m<sup>2</sup>);
- Bunded diesel and oil storage facilities (136 m<sup>2</sup>);
- Generator on bunded area;
- Ablution Facilities (2 m<sup>2</sup>);
- Weigh Bridge (18 m<sup>2</sup>); and
- Stockpiles (6.8ha).

The mining activities will consist out of the following:

- Stripping and stockpiling of topsoil;
- Blasting;
- Excavating;
- Crushing;
- 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; and

- Mobile crushing and screening plants.

### **Operational phase:**

During the operational phase Inzalo Crushing and Aggregates (Pty) Ltd makes use of blasting by means of emulsion explosives in order to loosen the hard rock, this material will be crushed and screened to produce aggregate. Blasting occurs approximately twice every month.

### **Mine area:**

- Demarcating the mining area:
- The mining area will be clearly demarcated by means of beacons at its corners, and along its boundaries if there is no visibility between the corner beacons.
- Permanent beacons will be firmly erected and maintained in their correct position throughout the life of the operation.
- The blasted material is loaded with earth moving equipment onto tipper trucks, which carts it to the crushing plant. Here it is fed into the crushers by means of a system of conveyor belts. After crushing and screening has taken place in the plant the crushed material is transported to the stockpile area. This activity will be continuous throughout the operation phase.

### **Mineral Processing:**

- The mining methods will make use of blasting by means of explosives in order to loosen the hard rock and the material will then be loaded and hauled out of the excavation and loaded onto a mobile crusher plant in the mining area. The aggregate will then be stockpiled and transported to clients via transporting trucks and trailers. Gravel will be recovered mechanically with drilling equipment, excavating equipment, earth-moving equipment, mobile crushing & screening plants. The aggregate / stone gravel that is recovered will be loaded on tipper trucks from where it will be transport to an area where it will be crushed, screened and stockpiled. Blasting noise will be instantaneous and of short duration. This will only occur once every two to three weeks. The blasted material is primarily crushed in the quarry by the blast. It is then loaded with earth moving equipment into trucks, which carts it to the crushing plant. Here it is fed into the crushers by means of a system of conveyor belts. After the crushing and screening has taken place in the plant the crushed material is transported into stockpile.
- Deliveries are made from the aggregate stockpiles. Delivery is by truck or alternatively it is collected by the client's transport.
- Approximately thirty workers will be employed at the site.

**Working hours:**

- All proceedings will be undertaken in 24 hours' day shifts to meet schedule demands.
- Two Shifts will be worked:
  - Sunrise to Sunset
  - Sunset to Sunrise

**Plant Residue Disposal:**

- No plant residue is generated that need to be disposed. Unsited material will be put back into the excavations.

**Roads and Transport:**

- The site is located of the N1 at the R723 Heilbron / Vredefort off ramp. Turn right on the R723 and left in the direction of Heilbron. Continue approximately 1.2 km and turn left at the unnamed public road towards the Bloemhof Farm continue 1.7km to the farm gates.

Haul trucks will travel along the existing farm road up to the unnamed public road. Turning right they will travel along the existing road, as illustrated below.



**Figure 1: Satellite view indicating the proposed access road to the mining site**



- In the event that new roads need to be constructed, these roads will be selected as far as possible to avoid watercourses and steep gradients. Adequate drainage and erosion protection in the form of cut-off berms or trenches will be provided where necessary.
- Any new roads to be established to the site will be below the threshold of the EIA regulations of the National Environmental Management Act, 1998 (Act No. 107 of 1998) as amended June 2014.
- The existing farm road will be used as access road to the site. Should a portion of the access road need to be newly constructed in future the following will be adhered to:
  - The route will be selected that a minimum number of bushes or trees are felled and existing fence lines will be followed as far as possible.
  - Adequate drainage and erosion protection in the form of cut-off berms or trenches will be provided where necessary.

### **Water:**

- Process water will be obtained from the existing quarry pit. The water will mainly be used for dust suppression purposes on the crusher plant, roads and mining area. The mining activities will require process water that will be sourced from the quarry pit. A water use authorisation application is in process for dust suppression. Potable water will be transported to site daily. The solid waste produced during the operational phase of the project will be transported from site to the nearest landfill site.

### **Decommissioning phase:**

- The closure objectives for the mining area is to be made safe, and the remainder of the site to be returned to agricultural use. The perimeter of the site will be subject to top-dressed with topsoil and vegetated with an appropriate grass mix if vegetation does not naturally establish in the area within six months of the replacement of the topsoil.
- Control of weeds and alien invasive plant species is an important aspect after topsoil replacement and seeding (if applicable) has been done in an area.
- Site management will implement an alien invasive plant management plan during the 12 months' aftercare period to address germination of problem plants in the area.

The decommissioning activities will consist of the following:

- Landscaping during rehabilitation;
- Replacing of topsoil; and
- Implementation of an alien invader plant management plan.

**e) Policy and Legislative Context**

| <b>APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT</b><br><small>(a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process)</small> | <b>REFERENCE APPLIED</b>  | <b>WHERE APPLIED</b> |
|--|---|----------------------|
| Mineral and Petroleum Resources Development Act, 2002, (Act No. 28 of 2002)<br>• Section 22  | Application for a Mining Right<br>Ref No: FS 30/5/1/2/2/10045 MR                  |                      |
| National Environmental Management Act 1998 (Act No. 107 of 1998) and the Environmental Impact Assessment Regulations, 2017   | Application for environmental authorisation Ref No: FS 30/5/1/2/2/10045 MR        |                      |
| National Environmental Management Act: Biodiversity Act, 2004 (Act No. 10 of 2004) and amendments  | Assessment of the Biophysical Environment   |                      |
| National Environmental Management Act: Waste Act, 2004 (Act No. 59 of 2008) and amendments   | Assessment of waste related activities on site                                    |                      |
| National Environmental Management Act: Air Quality Act, 2004 (Act No. 39 of 2004) and amendments   | Assessment of the dust activities on site.  |                      |
| National Water Act   | Assessment of the water activities and water use activities on site.              |                      |
| Mine Health and Safety Act, 1996 (Act No. 29 of 1996)  | The mitigation measures proposed for the site includes specifications of the MHSA |                      |
| National Heritage Resources Act No. 25 of 1999   | Assessment of the Cultural and Heritage Environment                               |                      |
| Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)  | Assessment of biophysical environment   |                      |
| Land Use Planning Ordinance (Ordinance 15 of 1985)   | Land use zoning requirements  |                      |
| Free State Nature Conservation Ordinance 8 of 1969   | Biophysical Environment   |                      |
| Ngwathe Local Municipality Spatial Planning and Land Use Management By-law 2015  | Part A(iv)(1)(b) Description of the current land uses                             |                      |
| Spatial Planning and Land Use Management Act (SPLUMA)  | Land use zoning requirements  |                      |
| Free State Town Planning and Land Related By-Laws  |   |                      |
| Ngwathe Local Municipality Integrated Development Plan   | Part A(iv)(1)(b) Description of the current land uses                             |                      |
| Public Participation Guideline in terms of the NEMA EIA Regulations  | Used during the public participation process                                      |                      |



**f) Need and desirability of the proposed activities.**

(motivate the need and desirability of the proposed development including the need and desirability of the activity in the context of the preferred location)

The increase in building, construction and road maintenance projects in the vicinity of the property triggered the need of the applicant to trade with the available aggregate. The proposed mining will also contribute to the diversification of activities on the property, extending it from agriculture to include small scale mining.

**g) Period for which the environmental authorisation is required**

The applicant requests the Environmental Authorisation to be valid for a 20-year period in order to correspond with the validity of the mining right.

**h) Description of the process followed to reach the proposed preferred site.**

NB!! This section is not about the impact assessment itself, it is about the determination of the specific site layout having taken into consideration (1) the comparison of the originally proposed site plan, the comparison of that plan with the plan of environmental features and current land uses, the issues raised by interested and affected parties, and the consideration of alternatives to the initially proposed site layout as a result.

**i. Details of the alternatives considered.**

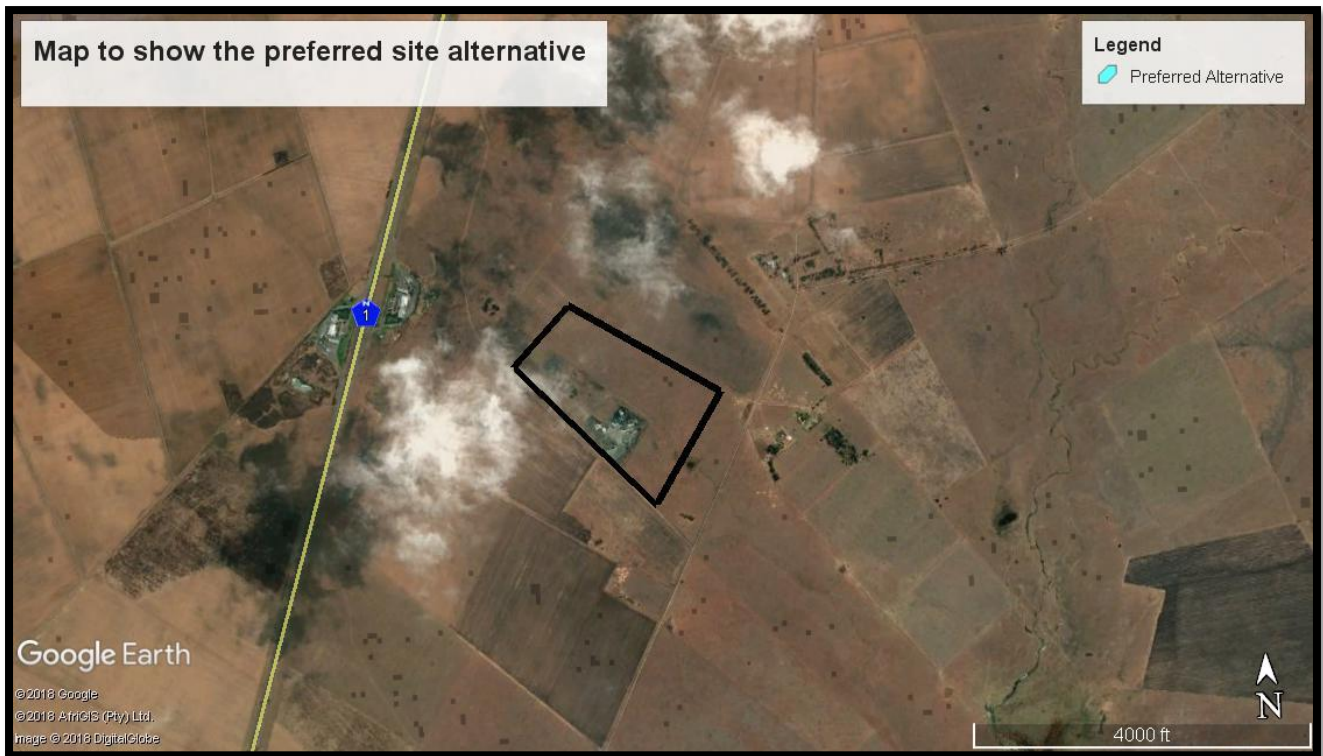
With reference to the site plan provided as Appendix 4 and the location of the individual activities on site, provide details of the alternatives considered with respect to:

- (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;
- (e) the operational aspects of the activity; and
- (f) the option of not implementing the activity.

The applicant identified two alternative sites for the proposed mining activity namely:

1. **Site Alternative 1 (S1) (Preferred Alternative):** The Applicant, Inzalo intends to apply for a mining right, 25.4ha, on the remaining extent of farm Bloemhof 14, within the boundaries of the following GPS Coordinates:

| Preferred Alternative   |  |
|---|--|
| Decimal Degrees   | Degrees; Minutes: Seconds  |
| <ul style="list-style-type: none"> <li>➤ A27.0548894°S; 27.5625444°E</li> <li>➤ B27.0513029°S; 27.5650583°E</li> <li>➤ C27.0483198°S; 27.5596529°E</li> <li>➤ D27.0502365°S; 27.5575594°E</li> <li>➤ A27.0548894°S; 27.5625444°E</li> </ul> | <ul style="list-style-type: none"> <li>➤ A27°3'17.6018"S; 27°33'45.1598"E</li> <li>➤ B27°3'4.6904"S; 27°33'54.2099"E</li> <li>➤ C27°2'53.9513"S; 27°33'34.7504"E</li> <li>➤ D27°3'0.8514"S; 27°33'27.2138"E</li> <li>➤ A27°3'17.6018"S; 27°33'45.1598"E</li> </ul> |



**Figure 2: Satellite view showing the position of Site Alternative 1 indicated in blue.**

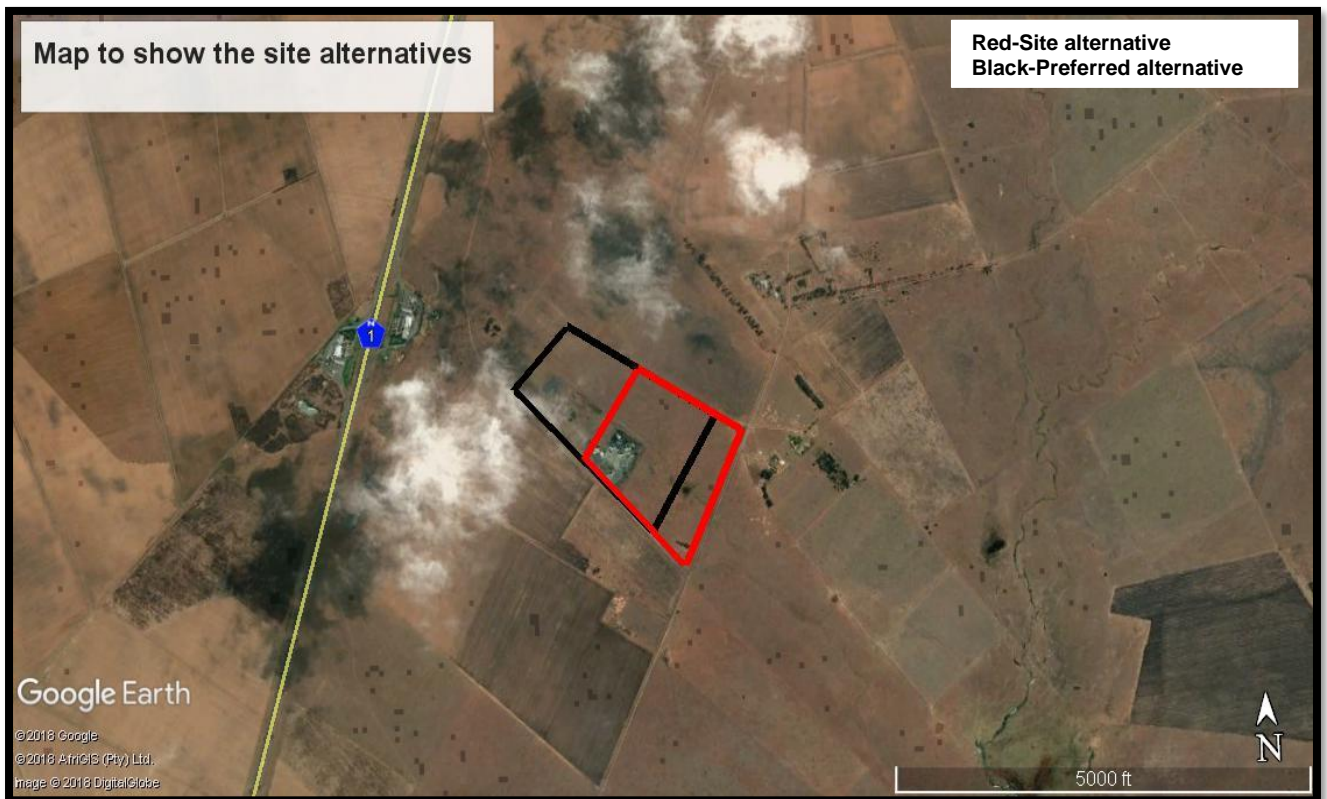
Site Alternative 1 was identified during the assessment phase of the environmental impact assessment, by the applicant and project team, and was therefore selected as the **preferred alternative** due to the following:

- The mining site offers the mineral sought after;
- The proposed footprint area was previously used for mining therefore very little indigenous vegetation needs to be disturbed in order to establish the mining area;
- The site is located approximately 500m from the closest farm house with mitigation measures in place impacts such as dust and noise will be minimal.
- The mining site is more than 25 km away for the town of closest town Koppies, and will not affect the community with regards to dust and noise;
- The mining area can be reached by an existing farm access road that connects to R723. No new road infrastructure need to be constructed;
- Due to the small size of the activity and the remote location of the mining area the potential impacts on the surrounding environment, associated with mining is deemed to be of low significance; and
- No residual waste as a result of the mining activity will be produced that needs to be treated on site. Any general waste that may be produced on-site will be contained in sealed refuse bins to be transported to the local municipal landfill site. The amount of hazardous waste to be produced at the site will be minimal and will mainly be as a result of accidental leakage.

Contaminated soil will be removed to the depth of the spillage and contained in sealed bins until removed from site by a hazardous waste handling contractor to be disposed of at a registered hazardous waste handling site.

2. **Site Alternative 2 (S2):** Site Alternative 2 entails the mining of a 25.4 ha area within the boundaries of the following GPS Coordinates:

| Site Alternative  |   |
|---|---|
| Decimal Degrees   | Degrees; Minutes; Seconds   |
| <ul style="list-style-type: none"> <li>■ A27.05248°S; 27.5601234°E</li> <li>■ B27.0497502°S; 27.5622447°E</li> <li>■ C27.0518223°S; 27.5660146°E</li> <li>■ D27.0560016°S; 27.5637109°E</li> <li>■ A27.05248°S; 27.5601234°E</li> </ul> | <ul style="list-style-type: none"> <li>■ A27°3'8.928"S; 27°33'36.4442"E</li> <li>■ B27°2'59.1007"S; 27°33'44.0809"E</li> <li>■ C27°3'6.5603"S; 27°33'57.6526"E</li> <li>■ D27°3'21.6058"S; 27°33'49.3592"E</li> <li>■ A27°3'8.928"S; 27°33'36.4442"E</li> </ul> |



**Figure 3: Satellite view showing the position of Site Alternatives**

The applicant investigates the possibility of establishing the proposed mining area next to the old mining area, to be located closer to the haul road to cut down on transport cost. This alternative was however found **not** to be the **preferred** alternative due to the following reasons:

- The site alternative will counteract the visual aesthetic value of the area by being closer to the road;
- The site has not been previously disturbed before; thus the natural area needs to be cleared and is not preferred with regards to sustainable development; and
- In the light of the above the impacts associated with establishing another quarry pit in a greenfield site on the property is believed to have a higher significance without the need or motivation to justify it.

**3. No-go Alternative:**

The no-go alternative entails no change to the status quo and is therefore a real alternative that needs to be considered. The aggregate to be stockpiled at the site will be used for road and construction industries, if however, the no-go alternative is implemented the applicant will not be able to utilize the mineral present in the area.

This could have major impacts on aspects such as transporting of material to construction sites from far off mining areas, cost effectiveness of material, impact on roads and road users due to long distance hauling of gravel and loss of income to the Koppies / Parys business area due to the multiplier effect.

The no-go alternative was not deemed to be the preferred alternative as:

- The applicant will not be able to supply in the demand of road or construction contractors,
- The application, if approved, would allow the applicant to utilize the available aggregates as well as provide employment opportunities to local employees. Should the no-go alternative be followed these opportunities will be lost to the applicant, potential employees and clients,
- The applicant will not be able to diversify the income of the property.

**ii. Details of the Public Participation Process Followed**

Describe the process undertaken to consult interested and affected parties including public meetings and one on one consultation. NB the affected parties must be specifically consulted regardless of whether or not they attended public meetings. (Information to be provided to affected parties must include sufficient detail of the intended operation to enable them to assess what impact the activities will have on them or on the use of their land.



The applicant will submit a mining right application for environmental authorisation in terms of NEMA, 1998 and the EIA Regulations, 2014 (amended 2017) to the DMR on the 14<sup>th</sup> of May 2018. Initial public participation was done in terms of this application and the below mentioned stakeholders, the landowner and I&AP's were notified of the proposed project.

The stakeholders and I&AP's were informed of the project by means of I&AP comment / notification letters that were either delivered by hand or sent directly to the contact persons. A 30 days commenting period were allowed which extended from the 13<sup>th</sup> of March 2018 to 13<sup>th</sup> of April 2018 during the initial Mining Right Application. A second commenting period (2<sup>nd</sup> public participation phase) was allowed which extended from the 13<sup>th</sup> of April 2018 to May 2018.

A register of interested and affected parties (I&AP's) will be opened and maintained containing the names, contact details and addresses 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 provides 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 DSR will then be updated to reflect the comments received during the public commenting period. Thereafter, the Final Scoping Report (FSR) will be submitted to the Department of Mineral Resources (DMR) – Welkom for review purposes on the 28<sup>th</sup> of June 2018, for its consideration as part of the authorization process in terms of the NEMA 2014 regulations (as amended by GNR 326 effective 7 April 2017). A copy of the final report will be made available on the Greenmined Environmental website. Once the Final Scoping Report has been accepted by the DMR, the Final Environmental Impact Assessment Report (DEIAR) will be prepared and also made available to the public for a 30-day commenting period. An electronic copy of the report will be published on the Greenmined Environmental website ([www.greenmined.com](http://www.greenmined.com)). All registered I&AP's and stakeholders will be notified of the commenting period in advance as above.

The acceptance letter (in terms of MPRDA) for the application was received 18 May 2018. This report is the Final Scoping Report (FSR) for the Mining Right Application.

Upon expiry of the commenting period the DEIAR will be updated to reflect the comments received during the public commenting period. Thereafter, the Final EIAR will be submitted to the DMR for its consideration as part of the authorization process in terms of the NEMA 2014 regulations (as amended by GNR 326 effective 7 April 2017). A copy of the final report will be made available on the

Greenmined Environmental website. 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.

The following I&AP's and stakeholders were contacted to obtain their comments:

| TITLE, NAME AND SURNAME                                | AFFILIATION/KEY STAKEHOLDER STATUS   | CONTACTED DATE | RESPONSE RECEIVED    |
|--|--|----------------|----------------------|
| Mnr. JP Coetzee  | Land Owner   | 2 March 2018   | No Comments Received |
| Boden Family Trust                                     | Surrounding Land Owner   | 2 March 2018   | No Comments Received |
| Ms Gasela<br>P/A Mr Thamela                            | Department of Economic Small Business Development, Tourism and Environmental Affairs (DETEA) | 2 March 2018   | No Comments Received |
| Mr Mwseoke<br>P/A Ms Kekeletso                         | Department of Public Works and Infrastructure  | 2 March 2018   | No Comments Received |
| Mr Mbana Peter<br>Thabethe<br>P/A Ms Mamphona          | Department of Agriculture and Rural Development  | 2 March 2018   | No Comments Received |
| Mr Nomfundo<br>Douwjack<br>Janine Janse v<br>Rensburg  | Department of Labour   | 2 March 2018   | No Comments Received |
| Mr S Msibi<br>P/A Timbe                                | Department of Police, Roads and Transport  | 2 March 2018   | No Comments Received |
| Mr TP Ntli   | Department of Water Affairs & Sanitation   | 2 March 2018   | No Comments Received |
| Mr Pule Tshekeledi<br>(Acting)                         | Ngwathe Local Municipality   | 2 March 2018   | No Comments Received |
| Cllr Rosie Kgantsie.                                   | Ngwathe Local Municipality Ward 8  | 2 March 2018   | No Comments Received |
| MS LM Molibeli   | Fezile Dabi District Municipality  | 2 March 2018   | No Comments Received |
| Officer Environmental Management<br>Earl Craig Daniels | Eskom  | 2 March 2018   | No Comments Received |
| Rene de Bruin<br>Land Development<br>Technologist FSOU | Eskom  | 2 March 2018   | 3 May 2018           |
| Me Judy Marx   | SANRAL Regional Offices  | 2 March 2018   | No Comments Received |

On-site notices were placed at the site entrance on the unnamed public road and in town at the Engen Garage in Kroonvaal on the 13<sup>th</sup> of March 2018. The project was also advertised in the Parys Gazette on the Thursday the 15<sup>th</sup> of March 2018. An I&AP site meeting (27 March 2018) was held on site to discuss any concerns that the Public or Interested and Affected parties might have with the project.

See attached Appendix 10 for proof of the public participation process conducted for the said mining right application.

iii. Summary of issues raised by I&APs

(Compile the table summarising comments and issues raised, and reaction to those responses)

| Interested and Affected Parties  | Date Comments Received | Issues raised        | EAPs response to issues as mandated by the applicant | Section and paragraph reference in this report where the issues and or response were incorporated. |
|--|------------------------|----------------------|--|--|
| <p>List the name of persons consulted in this column, and</p> <p>Mark with an X where those who must be consulted were in fact consulted</p> |                        |                      |  |  |
| <b>AFFECTED PARTIES</b>  |                        |                      |  |  |
| <b>Landowner/s</b>   |                        |                      |  |  |
| Mr. JP Coetzee   | X                      | No comments received | No objections  | N/A  |
| <b>Lawful occupier/s of the land</b>   |                        |                      |  |  |
| N/A  |                        | N/A                  | N/A  | N/A  |
| <b>Landowners or lawful occupiers on adjacent properties</b>   |                        |                      |  |  |
| Boden Family Trust   | X                      | No comments received | N/A  | N/A  |
| <b>Municipal councillor</b>  |                        |                      |  |  |
| Cllr Rosie Kgantsie. Ngwathe Local Municipality Ward 8   | X                      | No comments received | N/A  | N/A  |
| <b>Municipality</b>  |                        |                      |  |  |
| Ngwathe Local Municipality<br>Mr Pule Tshekedi (Acting)  | X                      | No comments received | N/A  | N/A  |
| Fezile Dabi District Municipality<br>MS LM Molibeli  | X                      | No comments received | N/A  | N/A  |
| <b>Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA e</b>                           |                        |                      |  |  |
| Department of Public Works and Infrastructure – Head of Department<br>Mr Mwseoke<br>P/A Ms Kekeletso   | X                      | No comments received | N/A  | N/A  |
| <b>Communities</b>   |                        |                      |  |  |
| N/A  |                        | N/A                  | N/A  | N/A  |
| <b>Dept. Land Affairs</b>  |                        |                      |  |  |
| Department of Agriculture and Rural Development Mr Mbana Peter Thabethe<br>P/A Ms Mamphona   | X                      | No comments received | N/A  | N/A  |
| <b>Traditional Leaders</b>   |                        |                      |  |  |
| N/A  |                        | N/A                  | N/A  | N/A  |
| <b>Dept. Environmental Affairs</b>   |                        |                      |  |  |
| Department of Economic Small Business Development, Tourism and Environmental Affairs (DETEA)<br>Ms Gasela<br>P/A Mr Thabela                  | X                      | No comments received | N/A  | N/A  |
| <b>Other Competent Authorities affected</b>  |                        |                      |  |  |
| Department of Labour<br>Mr Nomfundo Douwjack<br>Janine Janse v Rensburg  | X                      | No comments received | • N/A  | N/A  |
| Department of Water and Sanitation Free State<br>Mr TP Ntli  | X                      | No comments received | N/A  | N/A  |
| Department of Police, Roads and Transport - Mr S Msibi<br>P/A Timbe  | X                      | No comments received | N/A  | N/A  |

| Interested and Affected Parties<br><br>List the name of persons consulted in this column, and<br><br>Mark with an X where those who must be consulted were in fact consulted | Date Comments Received | Issues raised   | EAPs response to issues as mandated by the applicant   | Section and paragraph reference in this report where the issues and or response were incorporated. |
|--|------------------------|---|--|--|
| ESKOM<br>Officer Environmental Management<br>Earl Craig Daniels  | X No comments received | N/A   | N/A  | N/A  |
| ESKOM<br>Rene de Bruin<br>Land Development Technologist FSOU   |                        | <p>As per the attached sketch, Eskom's network is affected, however Distribution (Dx) will raise no objection to the proposed works, as long as you adhere to Eskom's conditions and treat the power lines as live at all times.<br/>The lines affected are :</p> <ul style="list-style-type: none"> <li>■ 2 X Parys Rural - TVL 11kV</li> </ul> <p>Please find Eskom's conditions which must always be respected when working near or closer to our services:</p> <ol style="list-style-type: none"> <li>1. Eskom Dx shall at all times retain unobstructed access to and egress from its servitudes.</li> <li>2. Eskom Dx's consent does not relieve the applicant from obtaining the necessary statutory, land owner or municipal approvals.</li> <li>3. The applicant will adhere to all relevant environmental legislation. Any cost incurred by Eskom Dx as a result of non-compliance will be charged to the applicant.</li> <li>4. No drilling shall take place within 11 metres from any Eskom Dx power line structure,</li> <li>5. All work within Eskom Dx's servitude areas shall comply with the relevant Eskom earthing standards in force at the time.</li> <li>6. If Eskom Dx has to incur any expenditure in order to comply with statutory clearances or other regulations as a result of the applicant's activities or because of the presence of his equipment or installation within the servitude area, the applicant shall pay such costs to Eskom Dx on demand.</li> <li>7. The use of explosives of any type within 500metres of Eskom Dx's services shall only occur with Eskom Dx's prior written permission. If such permission is granted the applicant must give at least fourteen working days prior notice of the commencement of blasting. This allows time for arrangements to be made for supervision and/or precautionary instructions to be issued in terms of the blasting process. If blasting becomes necessary, application in this regard should be made separately.</li> <li>8. Changes in ground level may not infringe statutory ground to conductor clearances or statutory visibility clearances. After any changes in ground level, the surface shall be rehabilitated and stabilised so as to prevent erosion. The measures taken shall be to Eskom Dx's requirements.</li> <li>9. Eskom Dx shall not be liable for the death of or injury to any person or for the loss of or damage to any property whether as a result of the encroachment or of the use of the servitude area by the applicant, his/her agent, contractors, employees, successors in title, and assigns. The applicant indemnifies Eskom Dx against loss, claims or damages including claims pertaining to consequential damages by third parties and whether as a result of damage to or interruption of or interference with Eskom Dx's services or apparatus or otherwise. Eskom Dx will not be held responsible for damage to the applicant's equipment.</li> <li>10. No mechanical equipment, including mechanical excavators or high lifting machinery, shall be used in the vicinity of Eskom Dx's apparatus and/or services, without prior written permission having been granted by Eskom. If such permission is granted the applicant must give at least seven working days prior notice of the commencement of work. <b>This allows time for arrangements to be made for supervision and/or precautionary instructions to be issued by the relevant Technical Service Centre.</b></li> <li>11. No work shall commence unless Eskom Dx has received the applicant's written acceptance of the conditions specified in the letter of consent and/or permit.</li> <li>12. Eskom Dx's rights and duties in the servitude shall be accepted as having prior right at all times and shall not be obstructed or interfered with. Note: Where an electrical outage is required, at least fourteen work days are required to arrange same.</li> <li>13. Under no circumstances shall rubble, earth or other material be dumped within the servitude area. The applicant shall maintain the area concerned to Eskom Dx's satisfaction. The applicant shall be liable to Eskom Dx for the cost of any remedial action which has to be carried out by Eskom Dx.</li> <li>14. 14. The clearances between Eskom Dx's live electrical equipment and the proposed construction work shall be observed as stipulated by Regulation 15 of the <i>Electrical Machinery Regulations of the Occupational Health and Safety Act, 1993 (Act 85 of 1993)</i>.</li> <li>15. Eskom shall be regarded electrically live and therefore dangerous at all times.</li> <li>16. In spite of the restrictions stipulated by Regulation 15 of the Electrical Machinery Regulations of the Occupational Health and Safety Act, 1993 (Act 85 of 1993), as additional safety precaution, Eskom Dx</li> </ol> | Inzalo Bloemhof will not be entering the 11m restriction line. Eskom will be notified in any works is to be conducted in the Eskom servitude area. | Section 2 d) and Section 2 h) iii.   |



| Interested and Affected Parties<br>List the name of persons consulted in this column, and<br>Mark with an X where those who must be consulted were in fact consulted | Date Comments Received    | Issues raised  | EAPs response to issues as mandated by the applicant | Section and paragraph reference in this report where the issues and or response were incorporated. |
|--|---------------------------|--|--|--|
|  |                           | <p>will not approve the erection of houses or structures occupied or frequented by human beings under the power lines or within the servitude area.</p> <p>17. Eskom Dx may stipulate any additional requirements to illuminate any possible exposure to Customers or Public to coming into contact or be exposed to any dangers to Eskom plant.</p> <p>18. It is required of the applicant to familiarise him/herself with all safety hazards related to Electrical plant.</p> <p>19. Should the applicant or his/her contractor damage any of Eskom's services during execution of any work whatsoever, the incident must be reported to Eskom's Technical service centre, <b>Trompie Terblanche @ 056-819 1062 or 082 8951 041</b> immediately. The same person must be contacted <b>before</b> commencement of the project as well.</p> <p>For the re-location of any Eskom's services, our customer service centre should be contacted on <b>051-404 2211</b>.</p> <p>The above conditions should be accepted in writing before any work within Eskom Services commences and the Technical service centre must be informed of the future activities..</p> |  |  |
| South African Heritage Resource Agency<br>Me Judy Marx   | X<br>No comments received | N/A  | N/A  | N/A  |
| <b>OTHER AFFECTED PARTIES</b>  |                           |  |  |  |
| N/A  |                           | N/A  | N/A  | N/A  |
| <b>INTERESTED PARTIES</b>  |                           |  |  |  |
| N/A  |                           | N/A  | N/A  | N/A  |

**iv. The Environmental attributes associated with the alternatives.**

**(1) Baseline Environment**

**(a) Type of environment affected by the proposed activity.**

(Its current geographical, physical, biological, socio-economic, and cultural character)

**(i) Climate**

According to SA Explorer, Koppies normally receives about 467mm of rain per year, with most rainfall occurring mainly during mid summer. The chart below (lower left) shows the average rainfall values for Koppies per month. It receives the lowest rainfall (0mm) in July and the highest (85mm) in January. The monthly distribution of average daily maximum temperatures (centre chart below) shows that the average midday temperatures for Koppies range from 17°C in June to 28°C in January. The region is the coldest during June when the mercury drops to 0°C on average during the night. Consult the chart below (lower right) for an indication of the monthly variation of average minimum daily temperatures.

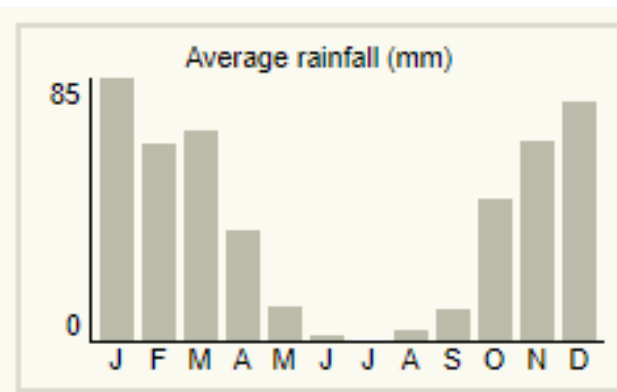


Figure 4: Average rainfall for Koppies

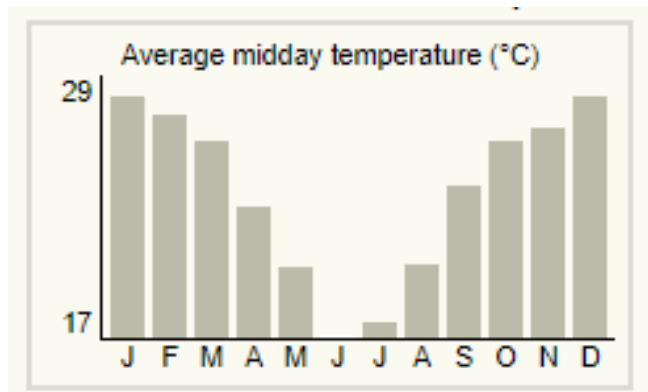


Figure 5: Average midday temperature

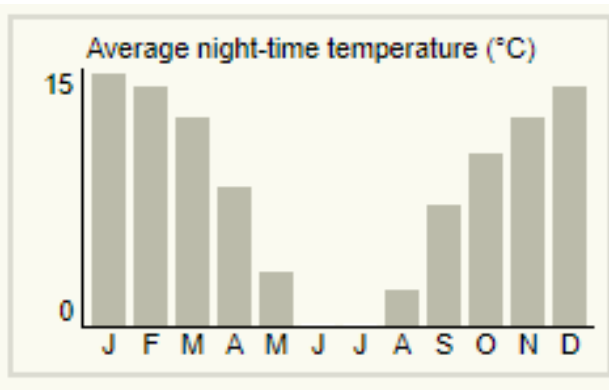


Figure 6: Average night-time temperature

**(ii) Geology**

Sedimentary mudstones and sandstone mainly of the Adelaide Subgroup (Beaufort Group, Karoo Supergroup) as well as those of the Eccca Group (Karoo Supergroup) found in the extreme northern section of this grassland, giving rise to vertic, melanic and red soils (typical forms are Arcadia, Bonheim, Kroonstad, Valsrivier and Rensburg)—typical of Dc land type (dominating the landscape). The less common intrusive dolerites of the Jurassic Karoo Dolerite Suite support dry clayey soils typical of the Ea land type.

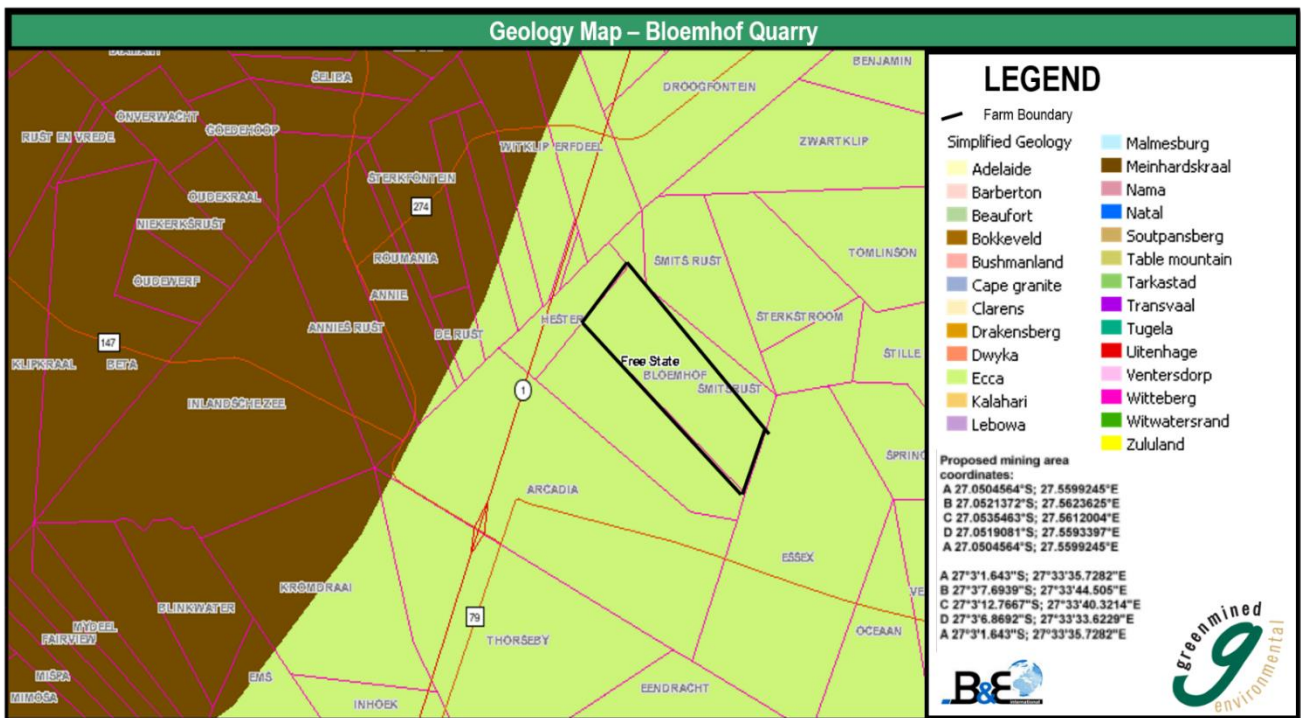
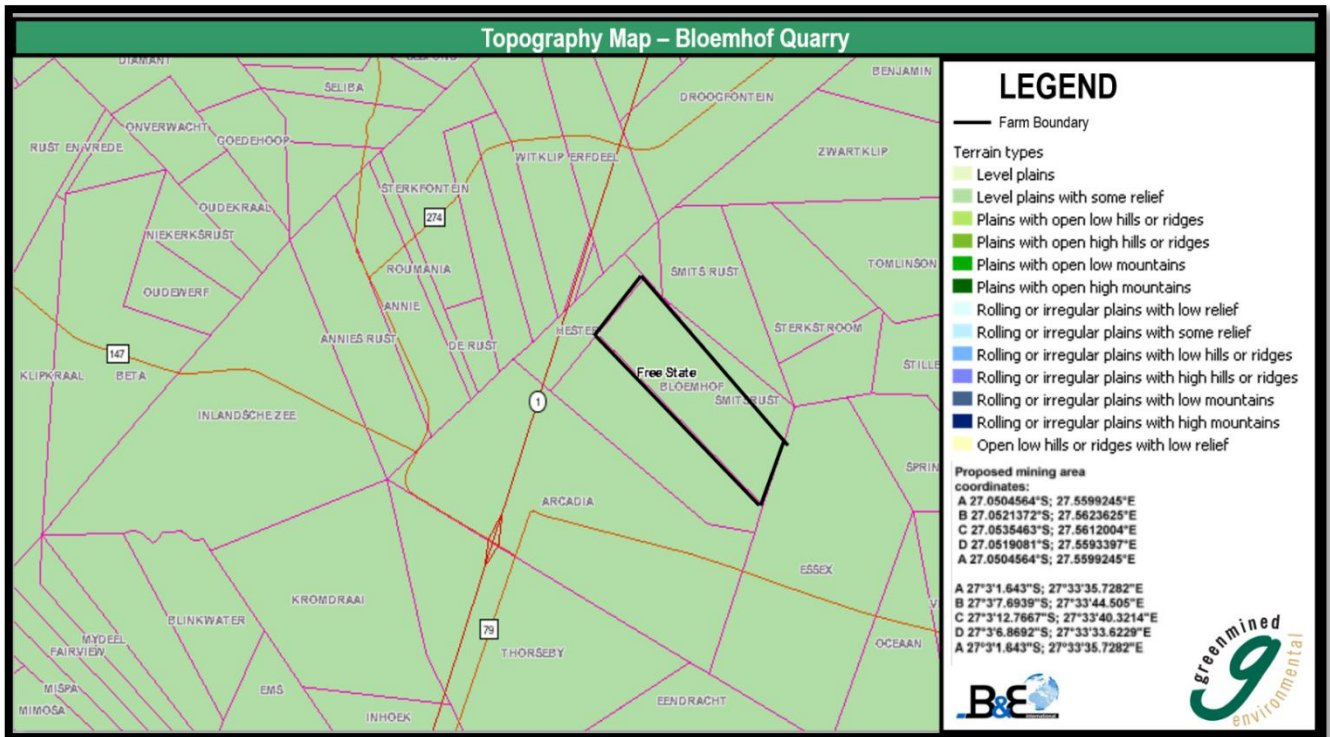


Figure 7: Geology of the Proposed Bloemhof Quarry.

**(iii) Topography:**

The topography of the area consists of level plains with some relief.



**Figure 8: Topography of the Proposed Bloemhof Quarry.**

**(iv) Soil, Land Use and Land Capability:**

Red to yellow sandy soils of the Ba and B.D land types. The topsoil is between 0 -300mm deep.

The surrounding land uses includes agricultural land and open veldt. Slightly to moderately undulating plains, including some low hills and pan depressions.

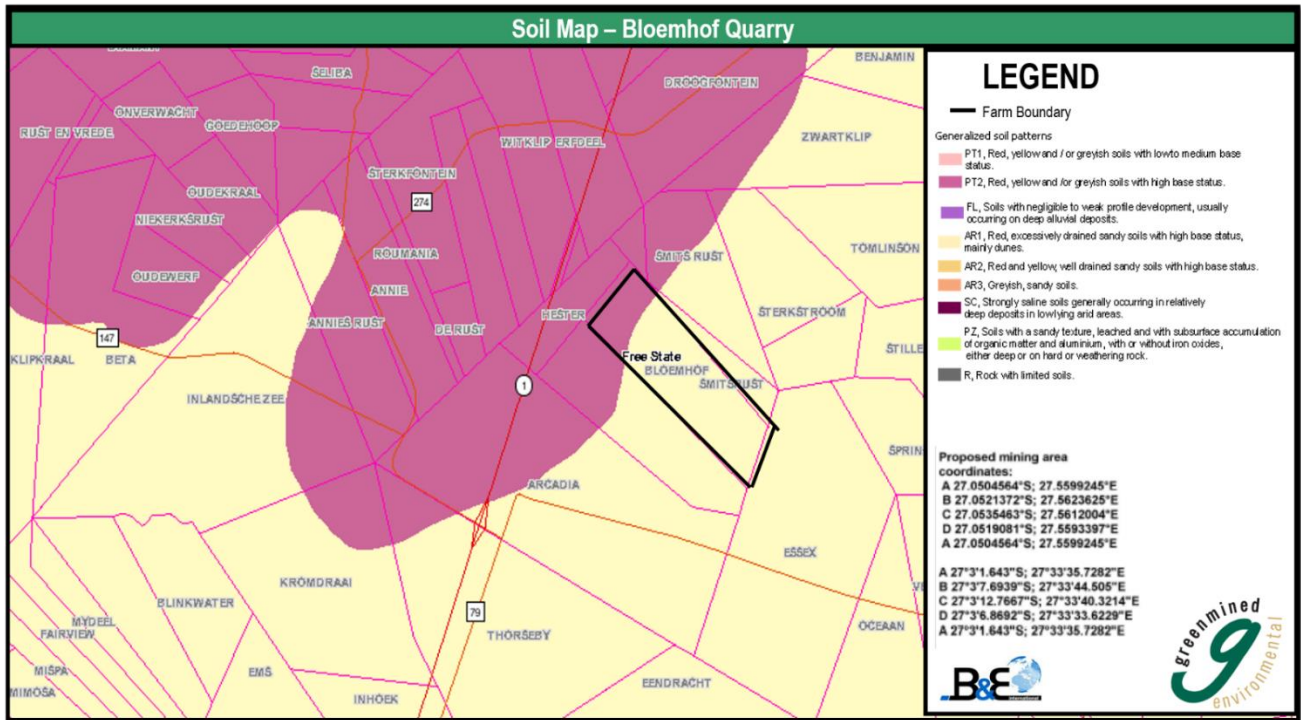


Figure 9: Soil Patterns of the Proposed Bloemhof Quarry.

The land capability of the farm consists out of high potential arable land to very high potential arable land. The northern side where the wetland is located is not arable.

**(v) Natural Vegetation:**

Undulating plains supporting short grassland, in natural condition dominated by *Themeda triandra* while *Eragrostis curvula* and *E. chloromelas* become dominant in degraded habitats. Dwarf karoo bushes establish in severely degraded clayey bottomlands. Overgrazed and trampled low-lying areas with heavy clayey soils are prone to *Acacia karroo* encroachment.

The site earmarked for the proposed mining activity has previously been used for aggregate mining purposes. Although some indigenous vegetation did re-establish through succession the vegetation of the area can be described as disturbed with a high invasion of alien invader plants.

No red data or protected plants could be identified in the proposed footprint area of the mining area.



**(vi) Land capability:**

The land capability of the area consists of marginal potential arable land.

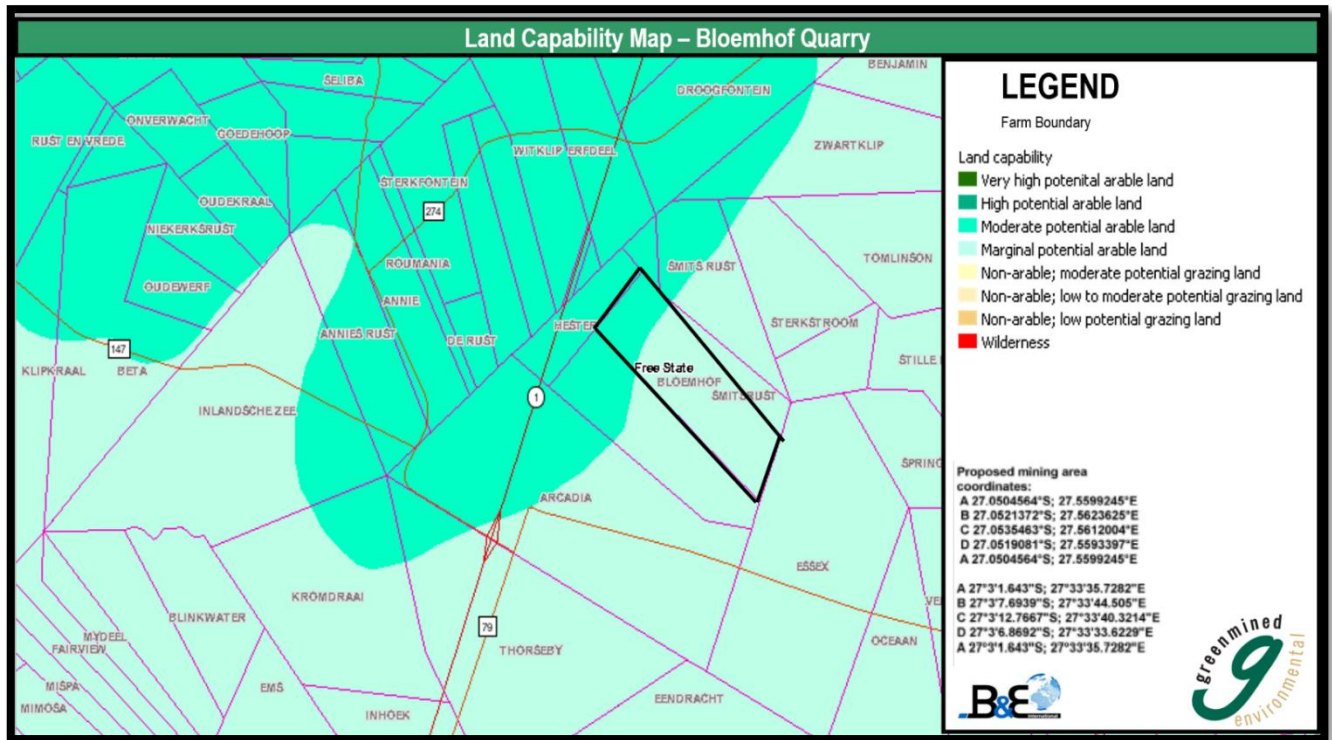


Figure 10: Land capability of the Proposed Bloemhof Quarry.

**(vii) Land cover:**

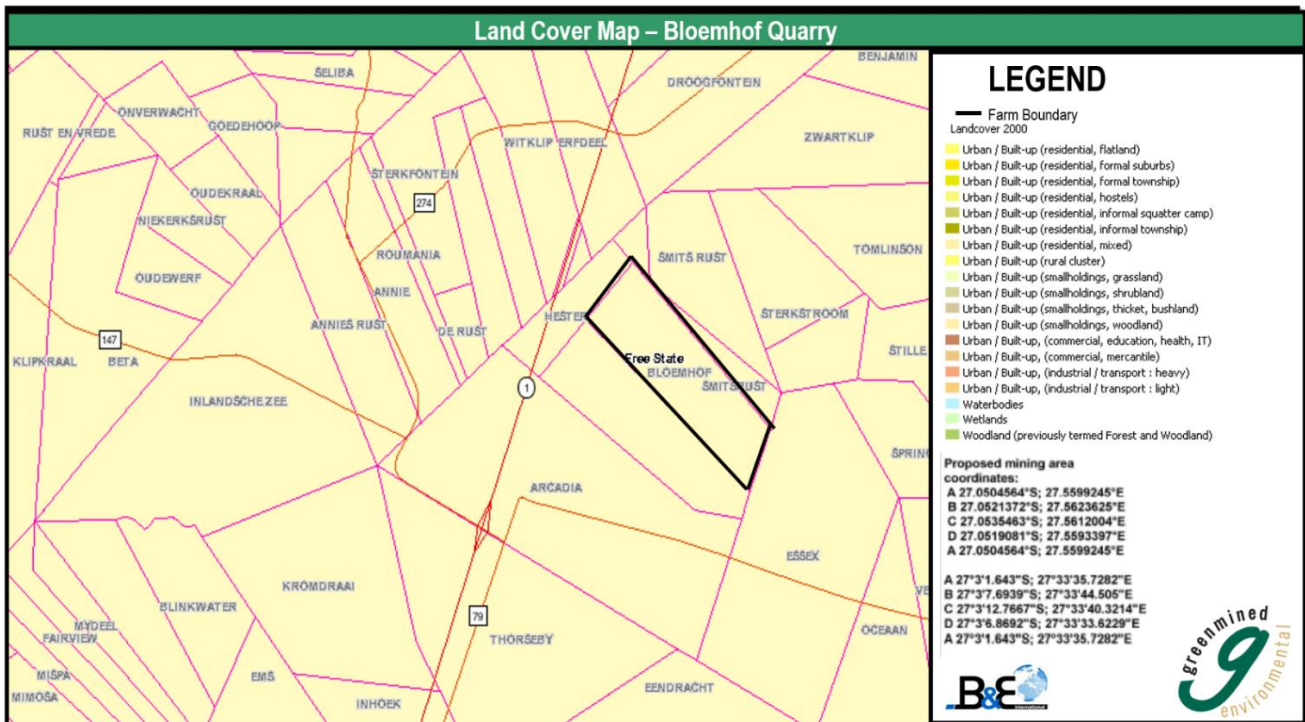


Figure 11: Land cover of the Proposed Bloemhof Quarry.

**(viii) Fauna:**

No animals were spotted during the site inspection. Animals that may occur in the area will be very similar to those found around Koppies. The area was previously disturbed for the recovery of gravel. Small mammals, reptiles and insects will occur in the area.

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.

**(ix) Surface and Ground Water:**

The proposed quarry falls within the Middle Vaal Water Management Area. The Middle Vaal WMA is located downstream of the confluence of the Vaal and the Rietspruit Rivers and upstream of Bloemhof Dam; It extends to the headwaters of the Schoonspruit River in the north and the Vet River in the south, covering a total catchment area of 52 563 km<sup>2</sup>. The Middle Vaal WMA includes parts of Free State and North-West provinces. Major rivers in the Middle Vaal Water Management Area include the Schoonspruit, Rhenoster, Vals, Vet and Vaal rivers. The tertiary drainage areas in the Middle Vaal WMA comprises C24, C25, C41, C43, C60 and C70. The proposed quarry falls within the quaternary catchment area of C24C.



No river diversions will be needed. There is an artificial wetland located in the north eastern corner of the property.

Ground water will not be affected with this activity of mining. Although the depth of the groundwater is unknown, mining at the proposed site is expected to be up to a maximum depth of 10m and therefore the impact on the groundwater will need continuous monitoring should ground water be intersected.

**(x) Air Quality:**

The background air quality of the surrounding area is highly impacted on by vehicles travelling along the N1. Given the surrounding extent of mostly covered vegetated areas, no extreme dust generation under windy conditions is experienced.

Emission into the atmosphere is controlled by the National Management: Air Quality Act, 2004. The proposed activity at the site will however not trigger an application in terms of the Air Quality Act as the emissions to be produced at the mining site will only entail dust generation due to the disturbance of soil. Dust will be generated by the movement of earthmoving equipment, the loading of material and transporting of material from site.

The trucks driving on site has to comply with the speed limit and since the material is coarse and heavy, minimal dust is generated during the transportation of material from the quarry. Loads will be flattened to ensure that minimal spillage of the material takes place during transportation. Topsoil stockpiles will be planted with indigenous grass species to ensure that exposed surface areas are minimised, reducing windblown dust from the site. The vegetation will also assist in capturing wind born dust and minimising the spread of dust from the site.

Dust generation on the access and haul roads as well as mechanical excavation can be managed through the implementation of dust suppression measures via water carts and a sprinkler system. The applicant has to conduct formal dust monitoring on site to provide management with an effective management tool for mitigating the impact of the mining activity on the surrounding environment with regard to dust pollution.

**(xi) Ambient Noise:**

The background noise level of the surrounding area is highly impacted on by traffic travelling along the N1 road passing the property.

Due to the nature of the proposed activity, noise will be generated as a result of mechanical excavation including activities such as drilling.

There are no influences on noise levels from industrial or other mining operation in the area. The noise generated from the mining machinery will be similar to noise generated along the N1 by public vehicles except after hours when the absence of surrounding activity and agricultural operations may exacerbate the presence of noise. Blasting noise will be instantaneous and of short duration. This will only occur once every two to three weeks. Loading and transportation of the material will generate noise daily. The significance of noise on the surrounding environment is therefore deemed to be of low significance. Mitigation measures should be implemented to ensure employees conduct them in an acceptable manner while on site in order to lessen the noise impact of the proposed activity on the surrounding environment. The nuisance value of noise generated by heavy earthmoving equipment for residence in the near vicinity is deemed to be of low – medium significance, as the mine is expected to be operational 24 hours a day for 6 days a week. All mining vehicles will also be equipped with silencers and maintained in a road worthy condition in terms of the National Road Traffic Act, 1996 (Act No 93. of 1996).

**(xii) Archaeological and Cultural Interest:**

No sites of archaeological or cultural importance were identified at the proposed mining area during the site inspection. The area was previously used for mining and no areas of cultural importance could be identified within the footprint area of the site.

**(xiii) Visual Exposure:**

Due to the current mining disturbance nearby the area the site has a low aesthetic value. The proposed mining area will visible from N1 passing the property and will therefore have a visual impact on the immediate surrounding area.

The applicant should ensure that housekeeping is managed to standard, as this will mitigate the visual impacts during the operational phase of the stockpile area. Upon closure of the mining area and decommissioning of the site, the area should be fully rehabilitated and all exposed areas should be seeded to enhance vegetation recovery should natural vegetation not establish within six months of completion of rehabilitation.

**(xiv) Regional Socio-economic structure:**

The Free State Province is situated between the Orange and Vaal Rivers. Bloemfontein is the capital city. It is a province of great contrasts from Highveld Grassland and Kalahari Sandveld country to majestic mountains, wilderness areas and farming land. The Free State Province is a strongly rural province. The provincial government's growth strategy is focused on addressing infrastructure backlogs, poverty alleviation and social development. The Free State is the third-largest province in South Africa. However, it has the second-smallest population and the second-lowest population density.

The province is favourably situated for economic co-operation with other parts of southern Africa as it shares a border with Lesotho. The Free State Province is divided into five District Municipalities and these are: -

- The Xhariep District
- The Motheo District
- The Lejweleputswa District
- The Thabu Mofutsanyane District
- The Fezile Dabi District

This district is an important agricultural production area, particularly for maize, and is known as the grain basket of South Africa. The Vaal Dam is the main source of water for Gauteng, and offers a wide profile of sport and leisure facilities. The district also has other attractions such as the Vredefort Dome, which is the third largest meteorite site in the world (200km in diameter), and various San paintings. The most important towns are Sasolburg and Kroonstad. Sasolburg has significant strategic importance for South Africa, as it is the location of large chemical and synthetic fuel plants (i.e. the Sasol plant). Kroonstad is an important agricultural and administrative centre in the district. Fezile Dabi District Municipality (DC20) is situated within the northern portion of Free State Province. The District Municipality borders Mpumalanga Province in the east, North-West Province in the west and Gauteng Province in the north. Commercial agriculture is an integral part of this part of the province, and cattle ranching and maize farming are very popular. Various chemical industries such as SASOL and its associated industries are found in this region. The provinces largest coal mines are also found in this district. Ngwanthe Local Municipality (FS203) is situated in the northern part of the Fezile Dabi District Municipality previously known as the Northern Free State, it is one of the four Local municipality within the district, the other three (3) being Moqhaka LM, Metsimaholo LM and Mafube LM. The total estimated population of the municipality in terms of Census 2011 results is 120 520. The geographical area of the province is 21301.006 square kilometres. The municipality comprises of five towns which are: Parys (Head Office), Heilbron, Koppies, Vredefort, and Edenville. Ngwanthe Local Municipality is a category B municipality as envisaged in section 155 (h) of the Constitution of the Republic of South Africa Act No. 108 of 1996, as such it has specific legislative powers and performs such duties and functions which are attributable to the local municipality of its category by the Constitution. In terms of the provincial gazette, Ngwanthe is supposed to be a Mayoral type municipality.

Inzalo Bloemhof's operation is located within Ward 8 of the Ngwanthe Local Municipality.

*(a) Education and Employment*

The District Municipality is also faced with the high levels of illiteracy and innumeracy. Census 2001 indicates that 13.77% of the population haven't had any schooling. Only 6.32% have higher education. These low levels of education are experienced within the female population. This is translated into 40.37% of the available workforce being economically inactive, 35% being employed and 24.58% being unemployed. Most of the males have employment in craft and related trades industries, as machine operators and assemblers and in elementary occupations. Almost all the women have employment in elementary occupations.

Table 1: Education levels in Ngwanthe LM

|                   | 1996  |        | 2001 |        | 2011  |        |
|-------------------|-------|--------|------|--------|-------|--------|
|                   | Male  | Female | Male | Female | Male  | Female |
| No schooling      | 4680  | 6247   | 5066 | 6839   | 2657  | 3531   |
| Some primary      | 7132  | 8709   | 7250 | 8783   | 5820  | 7910   |
| Completed primary | 2356  | 3019   | 2259 | 2812   | 1696  | 2172   |
| Some secondary    | 10083 | 11779  | 9617 | 11385  | 11780 | 13338  |
| Grade 12 / Std 10 | 3780  | 4153   | 5329 | 5803   | 9148  | 9586   |
| Higher            | 1699  | 1698   | 1763 | 1877   | 2202  | 2440   |

Source: STATSSA, Census 1996, 2001 and 2011

Table 2: Employment status in Ngwanthe LM

|      | Employed | Unemployed | Unemployment rate |
|------|----------|------------|-------------------|
| 1996 | 26313    | 13335      | 33.6              |
| 2001 | 22064    | 19643      | 47.1              |
| 2011 | 25376    | 13814      | 35.0              |

Source: STATSSA, Census 1996, 2001 and 2011

The unemployment rate in the municipality was high in 2011 at 35%. Though it was high in 2011 there was an improvement from the highest unemployment rate experienced in 2001 whereby almost half of the labour force was unemployed. The 2016 household survey does not show the unemployment status and therefore we rely on the 2011 statistics

*(b) Economic Profile*

Within the Fezile Dabi District, the most important mining town is Sasolburg. Mining and Chemical industries are the primary economic activities in the region and as such, is the largest contributor to the Province's GDP. A far greater portion of the land is used for agriculture.

*(c) Population Density, Growth and Location*

According to Census 2011, the Fezile Dabi District Municipality has a population of 460 276 with 75.4% being in rural areas.

Table 3: Population and population growth rates by the Fezile Dabi District Municipality.

| Municipality | 1996    | 2001    | Growth Rate (1996-2001) | 2011    | Growth Rate (2001-2011) |
|--------------|---------|---------|-------------------------|---------|-------------------------|
| Ngwathe      | 120 007 | 118 810 | -0.2                    | 120 520 | 0.1                     |

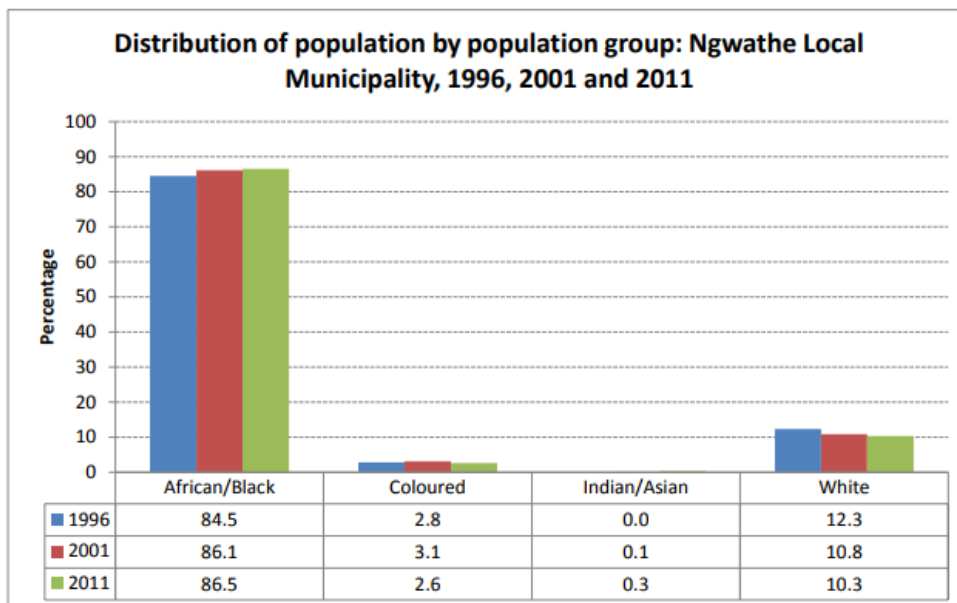
Source: STATSSA, Census 1996, 2001 and 2011

It is indicated from the table below that Ngwanthe Municipality is experience a negative growth in population.

Table 4: Statistics for 2016.

| Ngwathe Local Municipality | Black african |        |        | Coloured |        |       | Indian/asian |        |       | White |        |       | Total |        |        |
|----------------------------|---------------|--------|--------|----------|--------|-------|--------------|--------|-------|-------|--------|-------|-------|--------|--------|
|                            | Male          | Female | Total  | Male     | Female | Total | Male         | Female | Total | Male  | Female | Total | Male  | Female | Total  |
| FS203: Ngwathe             | 50027         | 54480  | 104507 | 1502     | 1537   | 3039  | 61           | -      | 61    | 4834  | 6465   | 11299 | 56425 | 62482  | 118907 |

Population figures according to race:

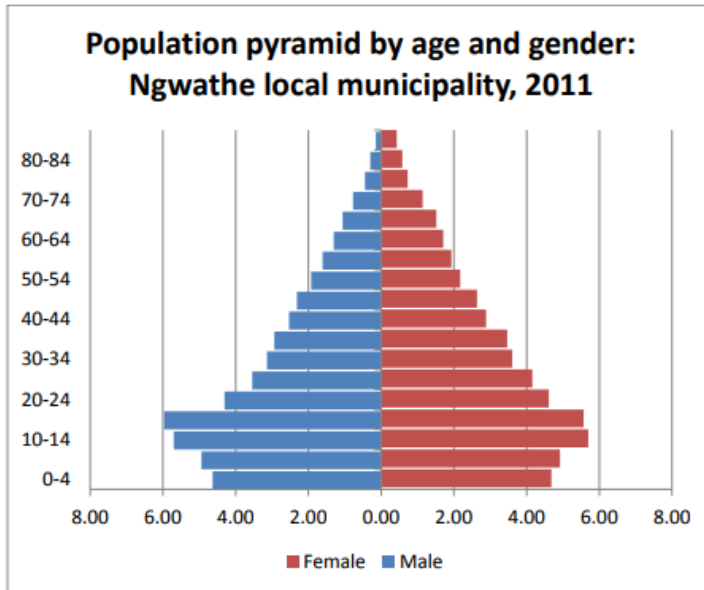


Source: STATSSA, Census 1996, 2001 and 2011

Figure 12: Distribution by race.

The figure above indicates that the municipality consists of the large number of Black African population followed by whites then coloureds. Though the Indian population is the smallest it has been growing from less than 0.1% in 1996 to 0.3% in 2011.

The gender breakdown is as follows (2011 Census) Gender People Percentage Female 1416623 51.60% Male 1328967 48.40% for the Free State Province.



Source: STATSSA, Census 2011

Figure 13: Population pyramid by age and gender.

Population pyramid for 2011 shows a bulge at the lower levels age groups 10- 19 years old. This shows that the municipality consist of the young population who still needs to go to school and enter the labour market in few years. It also shows that the older population 60 years and above lives longer. Females seem to be out living the males as shown in the pyramid that on the female side for older population it is wider than the male side

Of the total population, 68% speak Sesotho and 13.56% speak Afrikaans. Black Africans make up 85.71% of the population and Whites constitute only 12.19%.

*(d) Housing*

Dwelling statistics indicate that 70% of the population lives in houses or some form of brick structure. Only 17% live in informal settlements.

*(e) Social Infrastructure*

Telephones and selected household goods

About 42% of the population has access to a public telephone nearby. Land based and cellular telephones are available to 38% of the regional population. Radio seems to be the most popular medium used followed by television. Toilets Census 2001 shows that 11% of the population uses pit latrines without ventilation and 62% having flushing toilets.



## Refuse removal

The refuse removal statistics support the toilet statistics in that 62 percent of the population have weekly refuse removal and 20% of the population have their own refuse dump.

### *(f) Water and Power Supply*

Electricity and gas are the most common forms of energy used for heating and cooking purposes. 80% of the population have access to electricity whilst 17% uses candles for lighting. About 15% of the population has piped water in their dwellings. About 90% of the regional population has access to piped water.

### **(b) Description of the current land uses.**

The remaining extent of the farm Bloemhof 14, Parys, Free State Province is situated in an agricultural and mining setting to the east of the R723. The land use of the property comprises of the following:

- Agriculture – Mainly grazing
- Mining – Signs of previous mining activities for aggregate is evident on the farm.

The land use of the surrounding properties comprises of the following:

- Industrial – NONE
- Residents – Residents are situated 0.5 km east of the mining site
- Transport – Unnamed public road is located 450 m from the proposed quarry, that is connecting to the R723 ( $\pm 1.7$  km away)
- Transport – N1 is located 850 m west from the proposed site
- Commercial – Kroonvaal Engen One Stop 650m west of the site
- Agriculture – Grazing

### **(c) Description of specific environmental features and infrastructure on the site.**

The proposed mining area is approximately 25.4ha in extent and the applicant, Inzalo Crushing and Aggregates (Pty) Ltd, intends to win material from the area for at least 20 years. The aggregate / stone gravel to be removed from the quarry will be used for road construction in the vicinity. The proposed quarry will therefore contribute to the upgrading / maintenance of road infrastructure in and around the Koppies / Parys area.

The existing infrastructure within 500 m of the proposed mining area is the Gravel Access Road, N1, Kroonvaal Engen One Stop and an existing quarry pit. The provincial road (R723) is approximately 1.7 km from the proposed mining area.

The impact of the proposed mining area on the infrastructural features of the surrounding area is deemed to be of low significance as the impact of the mining activity will be concentrated within the 25.4ha footprint area of the mine.

In order to mitigate the potential impact on the surface or ground water. Storm water management will be implemented on-site. Storm water will be channelled around the mining area to prevent possible contamination of clean water flowing over dirty areas. If this is implemented the proposed activity is not expected to have a negative effect on the surface or ground water in the vicinity.

**(d) Environmental and current land use map.**

(Show all environmental and current land use features)

The environmental and current land use map is attached as Appendix 3.

**v. Impacts identified**

(Provide a list of the potential impacts identified of the activities described in the initial site layout that will be undertaken, as informed by both the typical known impacts of such activities, and as informed by the consultations with affected parties together with the significance, probability and duration of the impacts)

The following potential impacts were identified of each main activity in each phase. The significance rating was determined using the methodology as explained under *vi) Methodology Used in Determining and Ranking the Significance*. The impact rating listed below was determined for each impact **prior** to bringing the proposed mitigation measures into consideration. The degree of mitigation indicates the possibility of partial, full or no mitigation of the identified impact.

Table 5: Impact Assessment for Inzalo –Bloemhof Quarry

| Nature of Impact                               | Impact  | Positive/Negative / Neutral Impact | Reversibility | Extent | Severity | Duration | Consequence | Probability | Frequency | Likelihood | Significance | Mitigation Rating |
|--|---|------------------------------------|---------------|--------|----------|----------|-------------|-------------|-----------|------------|--------------|-------------------|
| <b>CONSTRUCTION / SITE ESTABLISHMENT PHASE</b> |   |                                    |               |        |          |          |             |             |           |            |              |                   |
| <b>ACTIVITY:</b>                               | <b>DEMARICATION OF SITE WITH VISIBLE BEACONS.</b>   |                                    |               |        |          |          |             |             |           |            |              |                   |
|  | No impact could be identified other than the beacons being outside the boundaries of the approved processing area.  | Neg                                |               |        |          |          |             |             |           |            |              | Low               |
| <b>ACTIVITY:</b>                               | <b>ESTABLISHMENT OF TEMPORARY BUILDINGS AND INFRASTRUCTURE WITHIN BOUNDARIES OF SITE.</b>   |                                    |               |        |          |          |             |             |           |            |              |                   |
|  | If the infrastructure is established within the boundaries of the approved mining area, no impact could be identified.  | Neg                                |               |        |          |          |             |             |           |            |              | Low               |
| Social & Safety                                | Influx of unsuccessful job seekers which may informally settle in area.<br>Potential danger to surrounding communities  | Neg                                | Reversible    | 1      | 3        | 5        | 3           | 3           | 5         | 4          | 12           | Med               |
| Hazardous Waste                                | Contamination of area with hydrocarbons or hazardous waste materials  | Neg                                | Reversible    | 1      | 3        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Geology  | Disturbance of geological strata  | Neg                                | Irreversible  | 1      | 3        | 5        | 3           | 5           | 5         | 5          | 15           | Medium -High      |
| Soils  | Potential compaction of soils in neighbouring areas.<br>Potential contamination through littering.<br>Potential for loss of soil & damage to soil characteristics.<br>Initial increased potential for loss of soils and soil erosion.<br>Potential hydrocarbon contamination to soils.  | Neg                                | Reversible    | 1      | 3        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Flora  | Loss of biodiversity.<br>Potential damage to vegetation in neighbouring areas.<br>Alien invasive encroachment   | Neg                                | Reversible    | 1      | 2        | 4        | 2,3         | 3           | 5         | 4          | 9,333        | Low-Med           |
| Topography                                     | Alteration of topography  | Neg                                | Irreversible  | 1      | 2        | 5        | 2,7         | 2           | 5         | 3,5        | 9,333        | Low-Med           |
| Land Use                                       | Veldt fire might seriously impact on surrounding land-use (livestock/irrigation of neighbouring farmers).<br>Degrading of grazing potential for livestock farming   | Neg                                | Reversible    | 1      | 2        | 2        | 1,7         | 3           | 5         | 4          | 6,667        | Low-Med           |
| Visual aspect                                  | Deterioration in visual aesthetics of the area  | Neg                                | Reversible    | 2      | 1        | 3        | 2           | 2           | 5         | 3,5        | 7            | Low-Med           |
| Archaeological & cultural sites                | Loss of and disturbance to surface archaeological sites   | Neg                                | Irreversible  | 1      | 5        | 5        | 3,7         | 1           | 5         | 3          | 11           | Med               |
| Noise  | Noise nuisance caused by machinery stripping and stockpiling the topsoil.   | Neg                                | Reversible    | 1      | 2        | 4        | 2,3         | 5           | 5         | 5          | 11,67        | Medium            |
| Air quality                                    | Dust nuisance caused by the disturbance of soil.  | Neg                                | Reversible    | 2      | 2        | 4        | 2,7         | 4           | 5         | 4,5        | 12           | Medium            |
| Air quality                                    | Emissions caused by vehicles and equipment  | Neg                                | Reversible    | 2      | 2        | 4        | 2,7         | 4           | 5         | 4,5        | 12           | Medium            |
| Fauna  | Alienation of animals from the area.<br>Potential risk to avifauna.<br>Potential harm through littering.<br>Loss of food, nest sites and refugia<br>Hindrances to nocturnal animals and change in behaviour of nocturnal prey and predators.<br>New habitat available to fauna in the area and reduced activity should result in influx of animals to the area.<br>Impact to nocturnal insects and their predators and other nocturnal animals. | Neg                                | Reversible    | 2      | 2        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Surface water                                  | Potential silt-loading of drainage lines, downstream and surrounding water bodies.<br>Potential hydrocarbon contamination which may reach downstream surface water bodies.<br>Potential surface water contamination if leaks escape into the environment.<br>Potential impact of mining activities on the runoff and infiltration of storm water.   | Neg                                | Reversible    | 3      | 3        | 4        | 3,3         | 2           | 1         | 1,5        | 5            | Low-Med           |
| Groundwater                                    | Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table  | Neg                                | Reversible    | 2      | 3        | 3        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| <b>SUB ACTIVITY: ABLUTION FACILITIES</b>       |   |                                    |               |        |          |          |             |             |           |            |              |                   |
| Groundwater                                    | Portable Toilets<br>Potential harm through sewage leaks   | Neg                                | Reversible    | 2      | 3        | 5        | 3,3         | 3           | 5         | 4          | 13,33        | Med               |
| Surface water                                  | Portable Toilets<br>Potential harm through sewage leaks   | Neg                                | Reversible    | 2      | 3        | 5        | 3,3         | 3           | 5         | 4          | 13,33        | Med               |
| Noise  | Noise nuisance caused by machinery stripping and stockpiling the topsoil.   | Neg                                | Reversible    | 1      | 2        | 4        | 2,3         | 5           | 5         | 5          | 11,67        | Medium            |
| Visual aspect                                  | Deterioration in visual aesthetics of the area  | Neg                                | Reversible    | 2      | 1        | 3        | 2           | 2           | 5         | 3,5        | 7            | Low-Med           |
| Soils  | Portable Toilets<br>Potential harm through sewage leaks   | Neg                                | Reversible    | 1      | 3        | 5        | 3           | 3           | 5         | 4          | 12           | Med               |

| Nature of Impact                          | Impact  | Positive/Negative / Neutral Impact | Reversibility | Extent | Severity | Duration | Consequence | Probability | Frequency | Likelihood | Significance | Mitigation Rating |
|---|---|------------------------------------|---------------|--------|----------|----------|-------------|-------------|-----------|------------|--------------|-------------------|
| <b>SUB ACTIVITY: ACCESS ROADS</b>         |   |                                    |               |        |          |          |             |             |           |            |              |                   |
| Hazardous Waste                           | Contamination of area with hydrocarbons or hazardous waste materials  | Neg                                | Reversible    | 1      | 3        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Soils                                     | Potential compaction of soils in neighbouring areas.<br>Potential contamination through littering.<br>Potential for loss of soil & damage to soil characteristics.<br>Initial increased potential for loss of soils and soil erosion.<br>Potential hydrocarbon contamination to soils.  | Neg                                | Reversible    | 1      | 3        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Noise                                     | Noise nuisance caused by machinery stripping and stockpiling the topsoil.   | Neg                                | Reversible    | 1      | 2        | 4        | 2,3         | 5           | 5         | 5          | 11,67        | Medium            |
| Air quality                               | Dust nuisance caused by the disturbance of soil.  | Neg                                | Reversible    | 2      | 2        | 4        | 2,7         | 4           | 5         | 4,5        | 12           | Medium            |
| Air quality                               | Emissions caused by vehicles and equipment  | Neg                                | Reversible    | 2      | 2        | 4        | 2,7         | 4           | 5         | 4,5        | 12           | Medium            |
| Surface water                             | Potential silt-loading of drainage lines, downstream and surrounding water bodies.<br>Potential hydrocarbon contamination which may reach downstream surface water bodies.<br>Potential surface water contamination if leaks escape into the environment.<br>Potential impact of mining activities on the runoff and infiltration of storm water. | Neg                                | Reversible    | 3      | 3        | 4        | 3,3         | 2           | 1         | 1,5        | 5            | Low-Med           |
| Groundwater                               | Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table  | Neg                                | Reversible    | 2      | 3        | 3        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| <b>SUB ACTIVITY: SITE OFFICES</b>         |   |                                    |               |        |          |          |             |             |           |            |              |                   |
| Hazardous Waste                           | Contamination of area with hydrocarbons or hazardous waste materials  | Neg                                | Reversible    | 1      | 3        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Soils                                     | Potential compaction of soils in neighbouring areas.<br>Potential contamination through littering.<br>Potential for loss of soil & damage to soil characteristics.<br>Initial increased potential for loss of soils and soil erosion.<br>Potential hydrocarbon contamination to soils.  | Neg                                | Reversible    | 1      | 3        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Visual aspect                             | Deterioration in visual aesthetics of the area  | Neg                                | Reversible    | 2      | 1        | 3        | 2           | 2           | 5         | 3,5        | 7            | Low-Med           |
| Noise                                     | Noise nuisance caused by machinery stripping and stockpiling the topsoil.   | Neg                                | Reversible    | 1      | 2        | 4        | 2,3         | 5           | 5         | 5          | 11,67        | Medium            |
| Surface water                             | Potential silt-loading of drainage lines, downstream and surrounding water bodies.<br>Potential hydrocarbon contamination which may reach downstream surface water bodies.<br>Potential surface water contamination if leaks escape into the environment.<br>Potential impact of mining activities on the runoff and infiltration of storm water. | Neg                                | Reversible    | 3      | 3        | 4        | 3,3         | 2           | 1         | 1,5        | 5            | Low-Med           |
| Groundwater                               | Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table  | Neg                                | Reversible    | 2      | 3        | 3        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| <b>SUB ACTIVITY: VEHICLE SERVICE AREA</b> |   |                                    |               |        |          |          |             |             |           |            |              |                   |
| Hazardous Waste                           | Contamination of area with hydrocarbons or hazardous waste materials  | Neg                                | Reversible    | 1      | 3        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Soils                                     | Potential compaction of soils in neighbouring areas.<br>Potential contamination through littering.<br>Potential for loss of soil & damage to soil characteristics.<br>Initial increased potential for loss of soils and soil erosion.<br>Potential hydrocarbon contamination to soils.  | Neg                                | Reversible    | 1      | 3        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Visual aspect                             | Deterioration in visual aesthetics of the area  | Neg                                | Reversible    | 2      | 1        | 3        | 2           | 2           | 5         | 3,5        | 7            | Low-Med           |
| Noise                                     | Noise nuisance caused by machinery stripping and stockpiling the topsoil.   | Neg                                | Reversible    | 1      | 2        | 4        | 2,3         | 5           | 5         | 5          | 11,67        | Medium            |
| Air quality                               | Emissions caused by vehicles and equipment  | Neg                                | Reversible    | 2      | 2        | 4        | 2,7         | 4           | 5         | 4,5        | 12           | Medium            |
| Surface water                             | Potential silt-loading of drainage lines, downstream and surrounding water bodies.<br>Potential hydrocarbon contamination which may reach downstream surface water bodies.<br>Potential surface water contamination if leaks escape into the environment.<br>Potential impact of mining activities on the runoff and infiltration of storm water. | Neg                                | Reversible    | 3      | 3        | 4        | 3,3         | 2           | 1         | 1,5        | 5            | Low-Med           |
| Groundwater                               | Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table  | Neg                                | Reversible    | 2      | 3        | 3        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| <b>SUB ACTIVITY: WASH BAY</b>             |   |                                    |               |        |          |          |             |             |           |            |              |                   |
| Hazardous Waste                           | Contamination of area with hydrocarbons or hazardous waste materials  | Neg                                | Reversible    | 1      | 3        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Soils                                     | Potential compaction of soils in neighbouring areas.<br>Potential contamination through littering.<br>Potential for loss of soil & damage to soil characteristics.  | Neg                                | Reversible    | 1      | 3        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |

| Nature of Impact  | Impact  | Positive/Negative / Neutral Impact | Reversibility | Extent | Severity | Duration | Consequence | Probability | Frequency | Likelihood | Significance | Mitigation Rating |
|---|---|------------------------------------|---------------|--------|----------|----------|-------------|-------------|-----------|------------|--------------|-------------------|
|   | Initial increased potential for loss of soils and soil erosion.<br>Potential hydrocarbon contamination to soils.  |                                    |               |        |          |          |             |             |           |            |              |                   |
| Visual aspect   | Deterioration in visual aesthetics of the area  | Neg                                | Reversible    | 2      | 1        | 3        | 2           | 2           | 5         | 3,5        | 7            | Low-Med           |
| Noise   | Noise nuisance caused by machinery stripping and stockpiling the topsoil.   | Neg                                | Reversible    | 1      | 2        | 4        | 2,3         | 5           | 5         | 5          | 11,67        | Medium            |
| Air quality   | Emissions caused by vehicles and equipment  | Neg                                | Reversible    | 2      | 2        | 4        | 2,7         | 4           | 5         | 4,5        | 12           | Medium            |
| Surface water   | Potential silt-loading of drainage lines, downstream and surrounding water bodies.<br>Potential hydrocarbon contamination which may reach downstream surface water bodies.<br>Potential surface water contamination if leaks escape into the environment.<br>Potential impact of mining activities on the runoff and infiltration of storm water. | Neg                                | Reversible    | 3      | 3        | 4        | 3,3         | 2           | 1         | 1,5        | 5            | Low-Med           |
| Groundwater   | Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table  | Neg                                | Reversible    | 2      | 3        | 3        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| <b>SUB ACTIVITY: WORKSHOP</b>                                 |   |                                    |               |        |          |          |             |             |           |            |              |                   |
| Hazardous Waste   | Contamination of area with hydrocarbons or hazardous waste materials  | Neg                                | Reversible    | 1      | 3        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Soils   | Potential compaction of soils in neighbouring areas.<br>Potential contamination through littering.<br>Potential for loss of soil & damage to soil characteristics.<br>Initial increased potential for loss of soils and soil erosion.<br>Potential hydrocarbon contamination to soils.  | Neg                                | Reversible    | 1      | 3        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Flora   | Loss of biodiversity.<br>Potential damage to vegetation in neighbouring areas.<br>Alien invasive encroachment   | Neg                                | Reversible    | 1      | 2        | 4        | 2,3         | 3           | 5         | 4          | 9,333        | Low-Med           |
| Visual aspect   | Deterioration in visual aesthetics of the area  | Neg                                | Reversible    | 2      | 1        | 3        | 2           | 2           | 5         | 3,5        | 7            | Low-Med           |
| Noise   | Noise nuisance caused by machinery stripping and stockpiling the topsoil.   | Neg                                | Reversible    | 1      | 2        | 4        | 2,3         | 5           | 5         | 5          | 11,67        | Medium            |
| Air quality   | Emissions caused by vehicles and equipment  | Neg                                | Reversible    | 2      | 2        | 4        | 2,7         | 4           | 5         | 4,5        | 12           | Medium            |
| Surface water   | Potential silt-loading of drainage lines, downstream and surrounding water bodies.<br>Potential hydrocarbon contamination which may reach downstream surface water bodies.<br>Potential surface water contamination if leaks escape into the environment.<br>Potential impact of mining activities on the runoff and infiltration of storm water. | Neg                                | Reversible    | 3      | 3        | 4        | 3,3         | 2           | 1         | 1,5        | 5            | Low-Med           |
| Groundwater   | Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table  | Neg                                | Reversible    | 2      | 3        | 3        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| <b>SUB ACTIVITY: SALVAGE YARD</b>                             |   |                                    |               |        |          |          |             |             |           |            |              |                   |
| Hazardous Waste   | Contamination of area with hydrocarbons or hazardous waste materials  | Neg                                | Reversible    | 1      | 3        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Soils   | Potential compaction of soils in neighbouring areas.<br>Potential contamination through littering.<br>Potential for loss of soil & damage to soil characteristics.<br>Initial increased potential for loss of soils and soil erosion.<br>Potential hydrocarbon contamination to soils.  | Neg                                | Reversible    | 1      | 3        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Visual aspect   | Deterioration in visual aesthetics of the area  | Neg                                | Reversible    | 2      | 1        | 3        | 2           | 2           | 5         | 3,5        | 7            | Low-Med           |
| Noise   | Noise nuisance caused by machinery stripping and stockpiling the topsoil.   | Neg                                | Reversible    | 1      | 2        | 4        | 2,3         | 5           | 5         | 5          | 11,67        | Medium            |
| Air quality   | Emissions caused by vehicles and equipment  | Neg                                | Reversible    | 2      | 2        | 4        | 2,7         | 4           | 5         | 4,5        | 12           | Medium            |
| Surface water   | Potential silt-loading of drainage lines, downstream and surrounding water bodies.<br>Potential hydrocarbon contamination which may reach downstream surface water bodies.<br>Potential surface water contamination if leaks escape into the environment.<br>Potential impact of mining activities on the runoff and infiltration of storm water. | Neg                                | Reversible    | 3      | 3        | 4        | 3,3         | 2           | 1         | 1,5        | 5            | Low-Med           |
| Groundwater   | Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table  | Neg                                | Reversible    | 2      | 3        | 3        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| <b>SUB ACTIVITY: BUNDED DIESEL AND OIL STORAGE FACILITIES</b> |   |                                    |               |        |          |          |             |             |           |            |              |                   |
| Soils   | Potential compaction of soils in neighbouring areas.<br>Potential contamination through littering.<br>Potential for loss of soil & damage to soil characteristics.  | Neg                                | Reversible    | 1      | 3        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |



| Nature of Impact                             | Impact  | Positive/Negative / Neutral Impact | Reversibility | Extent | Severity | Duration | Consequence | Probability | Frequency | Likelihood | Significance | Mitigation Rating |
|--|---|------------------------------------|---------------|--------|----------|----------|-------------|-------------|-----------|------------|--------------|-------------------|
|  | Initial increased potential for loss of soils and soil erosion.<br>Potential hydrocarbon contamination to soils.  |                                    |               |        |          |          |             |             |           |            |              |                   |
| Visual aspect                                | Deterioration in visual aesthetics of the area  | Neg                                | Reversible    | 2      | 1        | 3        | 2           | 2           | 5         | 3,5        | 7            | Low-Med           |
| Noise  | Noise nuisance caused by machinery stripping and stockpiling the topsoil.   | Neg                                | Reversible    | 1      | 2        | 4        | 2,3         | 5           | 5         | 5          | 11,67        | Medium            |
| Surface water                                | Potential silt-loading of drainage lines, downstream and surrounding water bodies.<br>Potential hydrocarbon contamination which may reach downstream surface water bodies.<br>Potential surface water contamination if leaks escape into the environment.<br>Potential impact of mining activities on the runoff and infiltration of storm water. | Neg                                | Reversible    | 3      | 3        | 4        | 3,3         | 2           | 1         | 1,5        | 5            | Low-Med           |
| Groundwater                                  | Potential hydrocarbon contamination leaching into the water table. Reduction of local groundwater. Potential contamination through littering leaching into the groundwater table  | Neg                                | Reversible    | 2      | 3        | 3        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| <b>SUB ACTIVITY: GENERATOR AREA (BUNDED)</b> |   |                                    |               |        |          |          |             |             |           |            |              |                   |
| Soils  | Potential compaction of soils in neighbouring areas.<br>Potential contamination through littering.<br>Potential for loss of soil & damage to soil characteristics.<br>Initial increased potential for loss of soils and soil erosion.<br>Potential hydrocarbon contamination to soils.  | Neg                                | Reversible    | 1      | 3        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Noise  | Noise nuisance caused by machinery stripping and stockpiling the topsoil.   | Neg                                | Reversible    | 1      | 2        | 4        | 2,3         | 5           | 5         | 5          | 11,67        | Medium            |
| Surface water                                | Potential silt-loading of drainage lines, downstream and surrounding water bodies.<br>Potential hydrocarbon contamination which may reach downstream surface water bodies.<br>Potential surface water contamination if leaks escape into the environment.<br>Potential impact of mining activities on the runoff and infiltration of storm water. | Neg                                | Reversible    | 3      | 3        | 4        | 3,3         | 2           | 1         | 1,5        | 5            | Low-Med           |
| Groundwater                                  | Potential hydrocarbon contamination leaching into the water table. Reduction of local groundwater. Potential contamination through littering leaching into the groundwater table  | Neg                                | Reversible    | 2      | 3        | 3        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| <b>SUB ACTIVITY: WEIGH BRIDGE</b>            |   |                                    |               |        |          |          |             |             |           |            |              |                   |
| Hazardous Waste                              | Contamination of area with hydrocarbons or hazardous waste materials  | Neg                                | Reversible    | 1      | 3        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Soils  | Potential compaction of soils in neighbouring areas.<br>Potential contamination through littering.<br>Potential for loss of soil & damage to soil characteristics.<br>Initial increased potential for loss of soils and soil erosion.<br>Potential hydrocarbon contamination to soils.  | Neg                                | Reversible    | 1      | 3        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Visual aspect                                | Deterioration in visual aesthetics of the area  | Neg                                | Reversible    | 2      | 1        | 3        | 2           | 2           | 5         | 3,5        | 7            | Low-Med           |
| Noise  | Noise nuisance caused by machinery stripping and stockpiling the topsoil.   | Neg                                | Reversible    | 1      | 2        | 4        | 2,3         | 5           | 5         | 5          | 11,67        | Medium            |
| Air quality                                  | Dust nuisance caused by the disturbance of soil.  | Neg                                | Reversible    | 2      | 2        | 4        | 2,7         | 4           | 5         | 4,5        | 12           | Medium            |
| Air quality                                  | Emissions caused by vehicles and equipment  | Neg                                | Reversible    | 2      | 2        | 4        | 2,7         | 4           | 5         | 4,5        | 12           | Medium            |
| Surface water                                | Potential silt-loading of drainage lines, downstream and surrounding water bodies.<br>Potential hydrocarbon contamination which may reach downstream surface water bodies.<br>Potential surface water contamination if leaks escape into the environment.<br>Potential impact of mining activities on the runoff and infiltration of storm water. | Neg                                | Reversible    | 3      | 3        | 4        | 3,3         | 2           | 1         | 1,5        | 5            | Low-Med           |
| Groundwater                                  | Potential hydrocarbon contamination leaching into the water table. Reduction of local groundwater. Potential contamination through littering leaching into the groundwater table  | Neg                                | Reversible    | 2      | 3        | 3        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| <b>SUB ACTIVITY: PARKING AREA</b>            |   |                                    |               |        |          |          |             |             |           |            |              |                   |
| Soils  | Potential compaction of soils in neighbouring areas.<br>Potential contamination through littering.<br>Potential for loss of soil & damage to soil characteristics.<br>Initial increased potential for loss of soils and soil erosion.<br>Potential hydrocarbon contamination to soils.  | Neg                                | Reversible    | 1      | 3        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Noise  | Noise nuisance caused by machinery stripping and stockpiling the topsoil.   | Neg                                | Reversible    | 1      | 2        | 4        | 2,3         | 5           | 5         | 5          | 11,67        | Medium            |
| Air quality                                  | Emissions caused by vehicles and equipment  | Neg                                | Reversible    | 2      | 2        | 4        | 2,7         | 4           | 5         | 4,5        | 12           | Medium            |
| <b>SUB ACTIVITY: WASTE AREA</b>              |   |                                    |               |        |          |          |             |             |           |            |              |                   |
| Hazardous Waste                              | Contamination of area with hydrocarbons or hazardous waste materials  | Neg                                | Reversible    | 1      | 3        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |



| Nature of Impact                                      | Impact   | Positive/Negative / Neutral Impact | Reversibility | Extent | Severity | Duration | Consequence | Probability | Frequency | Likelihood | Significance | Mitigation Rating |
|---|--|------------------------------------|---------------|--------|----------|----------|-------------|-------------|-----------|------------|--------------|-------------------|
| Soils   | Potential compaction of soils in neighbouring areas.<br>Potential contamination through littering.<br>Potential for loss of soil & damage to soil characteristics.<br>Initial increased potential for loss of soils and soil erosion.<br>Potential hydrocarbon contamination to soils.   | Neg                                | Reversible    | 1      | 3        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Visual aspect   | Deterioration in visual aesthetics of the area   | Neg                                | Reversible    | 2      | 1        | 3        | 2           | 2           | 5         | 3,5        | 7            | Low-Med           |
| Fauna   | Alienation of animals from the area.<br>Potential risk to avifauna.<br>Potential harm through littering.<br>Loss of food, nest sites and refugia<br>Hindrance to nocturnal animals and change in behaviour of nocturnal prey and predators.<br>New habitat available to fauna in the area and reduced activity should result in influx of animals to the area.<br>Impact to nocturnal insects and their predators and other nocturnal animals. | Neg                                | Reversible    | 2      | 2        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Surface water   | Potential silt-loading of drainage lines, downstream and surrounding water bodies.<br>Potential hydrocarbon contamination which may reach downstream surface water bodies.<br>Potential surface water contamination if leaks escape into the environment.<br>Potential impact of mining activities on the runoff and infiltration of storm water.  | Neg                                | Reversible    | 3      | 3        | 4        | 3,3         | 2           | 1         | 1,5        | 5            | Low-Med           |
| Groundwater   | Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table   | Neg                                | Reversible    | 2      | 3        | 3        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| <b>ACTIVITY: STRIPPING AND STOCKPILING OF TOPSOIL</b> |  |                                    |               |        |          |          |             |             |           |            |              |                   |
| Geology   | Disturbance of geological strata   | Neg                                | Irreversible  | 1      | 3        | 5        | 3           | 5           | 5         | 5          | 15           | Medium -High      |
| Hazardous Waste                                       | Contamination of area with hydrocarbons or hazardous waste materials   | Neg                                | Reversible    | 1      | 3        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Soils   | Potential compaction of soils in neighbouring areas.<br>Potential contamination through littering.<br>Potential for loss of soil & damage to soil characteristics.<br>Initial increased potential for loss of soils and soil erosion.<br>Potential hydrocarbon contamination to soils.   | Neg                                | Reversible    | 1      | 3        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Flora   | Loss of biodiversity.<br>Potential damage to vegetation in neighbouring areas.<br>Alien invasive encroachment  | Neg                                | Reversible    | 1      | 2        | 4        | 2,3         | 3           | 5         | 4          | 9,333        | Low-Med           |
| Topography  | Alteration of topography   | Neg                                | Irreversible  | 1      | 2        | 5        | 2,7         | 2           | 5         | 3,5        | 9,333        | Low-Med           |
| Land Use  | Veldt fire might seriously impact on surrounding land-use (livestock/irrigation of neighbouring farmers).<br>Degrading of grazing potential for livestock farming  | Neg                                | Reversible    | 1      | 2        | 2        | 1,7         | 3           | 5         | 4          | 6,667        | Low-Med           |
| Visual aspect   | Deterioration in visual aesthetics of the area   | Neg                                | Reversible    | 2      | 1        | 3        | 2           | 2           | 5         | 3,5        | 7            | Low-Med           |
| Archaeological & cultural sites                       | Loss of and disturbance to surface archaeological sites  | Neg                                | Irreversible  | 1      | 5        | 5        | 3,7         | 1           | 5         | 3          | 11           | Med               |
| Noise   | Noise nuisance caused by machinery stripping and stockpiling the topsoil.  | Neg                                | Reversible    | 1      | 2        | 4        | 2,3         | 5           | 5         | 5          | 11,67        | Medium            |
| Air quality   | Dust generation  | Neg                                | Reversible    | 2      | 2        | 4        | 2,7         | 4           | 5         | 4,5        | 12           | Medium            |
| Air quality   | Emissions caused by vehicles and equipment   | Neg                                | Reversible    | 2      | 2        | 4        | 2,7         | 4           | 5         | 4,5        | 12           | Medium            |
| Fauna   | Alienation of animals from the area.<br>Potential risk to avifauna.<br>Potential harm through littering.<br>Loss of food, nest sites and refugia<br>Hindrance to nocturnal animals and change in behaviour of nocturnal prey and predators.<br>New habitat available to fauna in the area and reduced activity should result in influx of animals to the area.<br>Impact to nocturnal insects and their predators and other nocturnal animals. | Neg                                | Reversible    | 2      | 2        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Surface water   | Potential silt-loading of drainage lines, downstream and surrounding water bodies.<br>Potential hydrocarbon contamination which may reach downstream surface water bodies.<br>Potential surface water contamination if leaks escape into the environment.<br>Potential impact of mining activities on the runoff and infiltration of storm water.  | Neg                                | Reversible    | 3      | 3        | 4        | 3,3         | 2           | 1         | 1,5        | 5            | Low-Med           |
| Groundwater   | Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table   | Neg                                | Reversible    | 2      | 3        | 3        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |

| Nature of Impact  | Impact   | Positive/Negative / Neutral Impact | Reversibility | Extent | Severity | Duration | Consequence | Probability | Frequency | Likelihood | Significance | Mitigation Rating |
|---|--|------------------------------------|---------------|--------|----------|----------|-------------|-------------|-----------|------------|--------------|-------------------|
| <b>OPERATIONAL PHASE</b>  |  |                                    |               |        |          |          |             |             |           |            |              |                   |
| <b>ACTIVITY: DRILLING AND BLASTING</b>                                |  |                                    |               |        |          |          |             |             |           |            |              |                   |
| Soils   | Potential compaction of soils in neighbouring areas.<br>Potential contamination through littering.<br>Potential for loss of soil & damage to soil characteristics.<br>Initial increased potential for loss of soils and soil erosion.<br>Potential hydrocarbon contamination to soils.   | Neg                                | Reversible    | 1      | 3        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Noise   | Noise nuisance generated by drilling equipment and blasting  | Neg                                | Reversible    | 2      | 2        | 1        | 1,7         | 1           | 3         | 2          | 3,333        | Low               |
| Hazardous Waste   | Contamination of area with hydrocarbons or hazardous waste materials   | Neg                                | Reversible    | 1      | 3        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Flora   | Loss of biodiversity.<br>Potential damage to vegetation in neighbouring areas.<br>Alien invasive encroachment  | Neg                                | Reversible    | 1      | 4        | 2        | 2,3         | 2           | 5         | 3,5        | 8,167        | Low-Med           |
| Topography  | Alteration of topography   | Neg                                | Irreversible  | 1      | 2        | 5        | 2,7         | 2           | 5         | 3,5        | 9,333        | Low-Med           |
| Geology   | Disturbance of geological strata   | Neg                                | Irreversible  | 1      | 3        | 5        | 3           | 5           | 5         | 5          | 15           | Med               |
| Land Use  | Veldt fire might seriously impact on surrounding land-use (livestock/irrigation of neighbouring farmers).<br>Degrading of grazing potential for livestock farming  | Neg                                | Reversible    | 1      | 2        | 2        | 1,7         | 3           | 5         | 4          | 6,667        | Low-Med           |
| Visual aspect   | Deterioration in visual aesthetics of the area   | Neg                                | Reversible    | 2      | 1        | 3        | 2           | 2           | 5         | 3,5        | 7            | Low-Med           |
| Archaeological & cultural sites                                       | Loss of and disturbance to surface archaeological sites  | Neg                                | Irreversible  | 1      | 5        | 5        | 3,7         | 1           | 5         | 3          | 11           | Med               |
| Noise   | Noise nuisance generated by drilling equipment and blasting  | Neg                                | Reversible    | 2      | 2        | 1        | 1,7         | 1           | 3         | 2          | 3,333        | Low               |
| Air quality   | Dust generation  | Neg                                | Reversible    | 1      | 2        | 1        | 1,3         | 1           | 3         | 2          | 2,667        | Low               |
| Fauna   | Alienation of animals from the area.<br>Potential risk to avifauna.<br>Potential harm through littering.<br>Loss of food, nest sites and refugia<br>Hindrance to nocturnal animals and change in behaviour of nocturnal prey and predators.<br>New habitat available to fauna in the area and reduced activity should result in influx of animals to the area.<br>Impact to nocturnal insects and their predators and other nocturnal animals. | Neg                                | Reversible    | 2      | 2        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Low-Med           |
| Surface water   | Potential silt-loading of drainage lines, downstream and surrounding water bodies.<br>Potential hydrocarbon contamination which may reach downstream surface water bodies.<br>Potential surface water contamination if leaks escape into the environment.<br>Potential impact of mining activities on the runoff and infiltration of storm water.  | Neg                                | Reversible    | 2      | 1        | 2        | 1,7         | 2           | 5         | 3,5        | 5,833        | Low-Med           |
| Groundwater   | Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table   | Neg                                | Reversible    | 3      | 3        | 4        | 3,3         | 2           | 1         | 1,5        | 5            | Low-Med           |
| Social & Safety   | Health and Safety Risk by Blasting Activities.<br>Potential danger to surrounding communities  | Neg                                | Reversible    | 1      | 3        | 1        | 1,7         | 1           | 3         | 2          | 3,333        | Low               |
| <b>ACTIVITY: EXCAVATION AND LOADING OF AGGREGATES TO BE PROCESSED</b> |  |                                    |               |        |          |          |             |             |           |            |              |                   |
| Soils   | Potential compaction of soils in neighbouring areas.<br>Potential contamination through littering.<br>Potential for loss of soil & damage to soil characteristics.<br>Initial increased potential for loss of soils and soil erosion.<br>Potential hydrocarbon contamination to soils.   | Neg                                | Reversible    | 1      | 3        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Flora   | Loss of biodiversity.<br>Potential damage to vegetation in neighbouring areas.<br>Alien invasive encroachment  | Neg                                | Reversible    | 2      | 2        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Geology   | Disturbance of geological strata   | Neg                                | Irreversible  | 1      | 3        | 5        | 3           | 5           | 5         | 5          | 15           | Med               |
| Topography  | Alteration of topography   | Neg                                | Irreversible  | 1      | 2        | 5        | 2,7         | 2           | 5         | 3,5        | 9,333        | Low-Med           |
| Hazardous Waste   | Dust nuisance due to loading and transportation of the material  | Neg                                | Reversible    | 1      | 3        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Land Use  | Veldt fire might seriously impact on surrounding land-use (livestock/irrigation of neighbouring farmers).<br>Degrading of grazing potential for livestock farming  | Neg                                | Reversible    | 1      | 2        | 2        | 1,7         | 3           | 5         | 4          | 6,667        | Low-Med           |
| Visual aspect   | Deterioration in visual aesthetics of the area   | Neg                                | Reversible    | 2      | 2        | 4        | 2,7         | 4           | 5         | 4,5        | 12           | Med               |

| Nature of Impact                | Impact   | Positive/Negative / Neutral Impact | Reversibility | Extent | Severity | Duration | Consequence | Probability | Frequency | Likelihood | Significance | Mitigation Rating |
|---------------------------------|--|------------------------------------|---------------|--------|----------|----------|-------------|-------------|-----------|------------|--------------|-------------------|
| Archaeological & cultural sites | Loss of and disturbance to surface archaeological sites  | Neg                                | Irreversible  | 1      | 5        | 1        | 2,3         | 1           | 1         | 1          | 2,333        | Low               |
| Noise                           | Noise nuisance generated by excavation equipment   | Neg                                | Reversible    | 1      | 1        | 3        | 1,7         | 2           | 5         | 3,5        | 5,833        | Low-Med           |
| Air quality                     | Dust generation  | Neg                                | Reversible    | 2      | 2        | 4        | 2,7         | 4           | 5         | 4,5        | 12           | Med               |
| Air quality                     | Emissions caused by vehicles and equipment   | Neg                                | Reversible    | 2      | 2        | 4        | 2,7         | 4           | 5         | 4,5        | 12           | Med               |
| Fauna                           | Alienation of animals from the area.<br>Potential risk to avifauna.<br>Potential harm through littering.<br>Loss of food, nest sites and refugia<br>Hindrance to nocturnal animals and change in behaviour of nocturnal prey and predators.<br>New habitat available to fauna in the area and reduced activity should result in influx of animals to the area.<br>Impact to nocturnal insects and their predators and other nocturnal animals. | Neg                                | Reversible    | 2      | 2        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Social & Safety                 | Unsafe working conditions for employees  | Neg                                | Reversible    | 1      | 2        | 4        | 2,3         | 3           | 3         | 3          | 7            | Low-Med           |
| Surface water                   | Potential silt-loading of drainage lines, downstream and surrounding water bodies.<br>Potential hydrocarbon contamination which may reach downstream surface water bodies.<br>Potential surface water contamination if leaks escape into the environment.<br>Potential impact of mining activities on the runoff and infiltration of storm water.  | Neg                                | Reversible    | 2      | 1        | 2        | 1,7         | 2           | 5         | 3,5        | 5,833        | Low-Med           |
| Groundwater                     | Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table   | Neg                                | Reversible    | 2      | 3        | 2        | 2,3         | 2           | 5         | 3,5        | 8,167        | Low-Med           |
| <b>ACTIVITY:</b>                | <b>CRUSHING AND SCREENING OF AGGREGATES</b>  |                                    |               |        |          |          |             |             |           |            |              |                   |
| Noise                           | Noise nuisance caused by crushing plant.   | Neg                                | Reversible    | 2      | 2        | 4        | 2,7         | 4           | 5         | 4,5        | 12           | Med               |
| Hazardous Waste                 | Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table   | Neg                                | Reversible    | 1      | 3        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Soils                           | Potential compaction of soils in neighbouring areas.<br>Potential contamination through littering.<br>Potential for loss of soil & damage to soil characteristics.<br>Initial increased potential for loss of soils and soil erosion.<br>Potential hydrocarbon contamination to soils.   | Neg                                | Reversible    | 1      | 3        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Visual aspect                   | Deterioration in visual aesthetics of the area   | Neg                                | Reversible    | 2      | 1        | 3        | 2           | 2           | 5         | 3,5        | 7            | Low-Med           |
| Air quality                     | Dust generation  | Neg                                | Reversible    | 2      | 2        | 1        | 1,7         | 2           | 5         | 3,5        | 5,833        | Low-Med           |
| Air quality                     | Emissions caused by vehicles and equipment   | Neg                                | Reversible    | 2      | 2        | 1        | 1,7         | 2           | 5         | 3,5        | 5,833        | Low-Med           |
| Fauna                           | Alienation of animals from the area.<br>Potential risk to avifauna.<br>Potential harm through littering.<br>Loss of food, nest sites and refugia<br>Hindrance to nocturnal animals and change in behaviour of nocturnal prey and predators.<br>New habitat available to fauna in the area and reduced activity should result in influx of animals to the area.<br>Impact to nocturnal insects and their predators and other nocturnal animals. | Neg                                | Reversible    | 2      | 2        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Surface water                   | Potential silt-loading of drainage lines, downstream and surrounding water bodies.<br>Potential hydrocarbon contamination which may reach downstream surface water bodies.<br>Potential surface water contamination if leaks escape into the environment.<br>Potential impact of mining activities on the runoff and infiltration of storm water.  | Neg                                | Reversible    | 2      | 1        | 2        | 1,7         | 2           | 5         | 3,5        | 5,833        | Low-Med           |
| Groundwater                     | Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table   | Neg                                | Reversible    | 2      | 3        | 2        | 2,3         | 2           | 5         | 3,5        | 8,167        | Low-Med           |
| <b>ACTIVITY:</b>                | <b>STOCKPILING AND TRANSPORTATION OF MATERIAL FROM STOCKPILE AREA TO CLIENTS</b>   |                                    |               |        |          |          |             |             |           |            |              |                   |
| Soils                           | Potential compaction of soils in neighbouring areas.<br>Potential contamination through littering.<br>Potential for loss of soil & damage to soil characteristics.<br>Initial increased potential for loss of soils and soil erosion.<br>Potential hydrocarbon contamination to soils.   | Neg                                | Reversible    | 1      | 3        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Hazardous Waste                 | Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table   | Neg                                | Reversible    | 1      | 3        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |

| Nature of Impact                                     | Impact  | Positive/Negative / Neutral Impact | Reversibility | Extent | Severity | Duration | Consequence | Probability | Frequency | Likelihood | Significance | Mitigation Rating |
|--|---|------------------------------------|---------------|--------|----------|----------|-------------|-------------|-----------|------------|--------------|-------------------|
| Visual aspect  | Deterioration in visual aesthetics of the area  | Neg                                | Reversible    | 2      | 1        | 3        | 2           | 2           | 5         | 3,5        | 7            | Low-Med           |
| Noise  | Noise nuisance caused by vehicles   | Neg                                | Reversible    | 2      | 2        | 4        | 2,7         | 3           | 2         | 2,5        | 6,667        | Low-Med           |
| Air quality  | Dust generation   | Neg                                | Reversible    | 2      | 2        | 1        | 1,7         | 2           | 5         | 3,5        | 5,833        | Low-Med           |
| Air quality  | Emissions caused by vehicles and equipment  | Neg                                | Reversible    | 2      | 2        | 1        | 1,7         | 2           | 5         | 3,5        | 5,833        | Low-Med           |
| Traffic and Safety                                   | Road degradation.<br>Increased potential for road incidences<br>Potential distraction to road users   | Neg                                | Reversible    | 2      | 2        | 4        | 2,7         | 3           | 2         | 2,5        | 6,667        | Low-Med           |
| Surface water  | Potential silt-loading of drainage lines, downstream and surrounding water bodies.<br>Potential hydrocarbon contamination which may reach downstream surface water bodies.<br>Potential surface water contamination if leaks escape into the environment.<br>Potential impact of mining activities on the runoff and infiltration of storm water. | Neg                                | Reversible    | 2      | 1        | 2        | 1,7         | 2           | 5         | 3,5        | 5,833        | Low-Med           |
| Groundwater  | Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table  | Neg                                | Reversible    | 2      | 3        | 2        | 2,3         | 2           | 5         | 3,5        | 8,167        | Low-Med           |
| <b>DECOMMISSIONING PHASE</b>                         |   |                                    |               |        |          |          |             |             |           |            |              |                   |
| <b>ACTIVITY:</b>                                     | <b>SLOPING, LANDSCAPING AND REPLACEMENT OF TOPSOIL OVER DISTURBED AREA (FINAL REHABILITATION)</b>   |                                    |               |        |          |          |             |             |           |            |              |                   |
| Soils  | Potential compaction of soils in neighbouring areas.<br>Potential contamination through littering.<br>Potential for loss of soil & damage to soil characteristics.<br>Initial increased potential for loss of soils and soil erosion.<br>Potential hydrocarbon contamination to soils.  | Neg                                | Reversible    | 1      | 3        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Soils  | Soils replaced and ameliorated  | Pos                                | Reversible    | 1      | 3        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Flora  | Loss of biodiversity.<br>Potential damage to vegetation in neighbouring areas.<br>Alien invasive encroachment   | Neg                                | Reversible    | 1      | 4        | 2        | 2,3         | 2           | 5         | 3,5        | 8,167        | Low-Med           |
| Topography   | Alteration of topography  | Neg                                | Irreversible  | 1      | 2        | 5        | 2,7         | 2           | 5         | 3,5        | 9,333        | Low-Med           |
| Topography   | Eradication of trenches and berms.<br>Re-contouring of area for free surface water drainage.<br>Eradication of stockpiles   | Pos                                | Irreversible  | 1      | 2        | 5        | 2,7         | 2           | 5         | 3,5        | 9,333        | Low-Med           |
| Land Use   | Veldt fire might seriously impact on surrounding land-use (livestock/irrigation of neighbouring farmers).<br>Degrading of grazing potential for livestock farming   | Neg                                | Reversible    | 1      | 2        | 2        | 1,7         | 3           | 5         | 4          | 6,667        | Low-Med           |
| Visual aspect  | Improved aesthetics through rehabilitation  | Pos                                | Reversible    | 2      | 1        | 3        | 2           | 2           | 5         | 3,5        | 7            | Low-Med           |
| Noise  | Noise nuisance caused by machinery  | Neg                                | Reversible    | 2      | 2        | 4        | 2,7         | 4           | 3         | 3,5        | 9,333        | Low-Med           |
| Air quality  | Dust nuisance caused during landscaping activities  | Neg                                | Reversible    | 2      | 2        | 1        | 1,7         | 2           | 5         | 3,5        | 5,833        | Low-Med           |
| Air quality  | Emissions caused by vehicles and equipment  | Neg                                | Reversible    | 2      | 2        | 1        | 1,7         | 2           | 5         | 3,5        | 5,833        | Low-Med           |
| Fauna  | Reintroduction of fauna attracted to flora to the area  | Neg                                | Reversible    | 2      | 2        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Fauna  | Reintroduction of fauna attracted to flora to the area  | Pos                                | Reversible    | 2      | 1        | 3        | 2           | 1           | 5         | 3          | 6            | Low-Med           |
| Social & Safety                                      | Health and safety risk posed by un-sloped areas   | Neg                                | Reversible    | 1      | 3        | 4        | 2,7         | 3           | 3         | 3          | 8            | Low-Med           |
| Surface water  | Potential silt-loading of drainage lines, downstream and surrounding water bodies.<br>Potential hydrocarbon contamination which may reach downstream surface water bodies.<br>Potential surface water contamination if leaks escape into the environment.<br>Potential impact of mining activities on the runoff and infiltration of storm water. | Neg                                | Reversible    | 2      | 1        | 2        | 1,7         | 2           | 5         | 3,5        | 5,833        | Low-Med           |
| Surface water  | Containment of dirty water. Improve response to issues relating to deterioration of surface water quality or quantity.<br>free drainage resorted to area. Revegetation of disturbed areas reduces risk of silt loading on downstream water bodies. Large area of surface water runoff return to catchment   | Pos                                | Reversible    | 2      | 3        | 2        | 2,3         | 2           | 5         | 3,5        | 8,167        | Low-Med           |
| Hazardous Waste                                      | Contamination of area with hydrocarbons or hazardous waste materials  | Neg                                | Reversible    | 1      | 3        | 4        | 2,7         | 3           | 5         | 4          | 10,67        | Med               |
| Groundwater  | Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table  | Neg                                | Reversible    | 2      | 3        | 2        | 2,3         | 2           | 5         | 3,5        | 8,167        | Low-Med           |
| Groundwater  | Improve response to issues relating to deterioration of groundwater quality or quantity   | Pos                                | Reversible    | 2      | 1        | 2        | 1,7         | 2           | 5         | 3,5        | 5,833        | Low-Med           |
| <b>ACTIVITY: Application for Closure Certificate</b> |   |                                    |               |        |          |          |             |             |           |            |              |                   |





## vi. Methodology used in determining the significance of environmental impacts

(Describe how the significance, probability, and duration of the aforesaid identified impacts that were identified through the consultation process was determined in order to decide the extent to which the initial site layout needs revision).

### Methodology for the assessment of the potential environmental, social and cultural impacts

#### **DEFINITIONS AND CONCEPTS:**

##### **Environmental significance:**

The concept of significance is at the core of impact identification, evaluation and decision-making. The concept remains largely undefined and there is no international consensus on a single definition. The following common elements are recognised from the various interpretations:

- Environmental significance is a value judgement
- The degree of environmental significance depends on the nature of the impact
- The importance is rated in terms of both biophysical and socio-economic values
- Determining significance involves the amount of change to the environment perceived to be acceptable to affected communities.

Significance can be differentiated into impact magnitude and impact significance. Impact magnitude is the measurable change (i.e. intensity, duration and likelihood). Impact significance is the value placed on the change by different affected parties (i.e. level of acceptability) (DEAT (2002) Impact Significance, Integrated Environmental Management, Information Series 5).

The concept of risk has two dimensions, namely the consequence of an event or set of circumstances, and the likelihood of particular consequences being realised (Environment Australia (1999) Environmental Risk Management).

##### **Impact**

The positive or negative effects on human well-being and / or the environment.

##### **Consequence**

The intermediate or final outcome of an event or situation OR it is the result, on the environment, of an event.

##### **Likelihood**

A qualitative term covering both probability and frequency.



**Frequency**

The number of occurrences of a defined event in a given time or rate.

**Probability**

The likelihood of a specific outcome measured by the ratio of a specific outcome to the total number of possible outcomes.

**Environment**

Surroundings in which an organisation operates, including air, water, land, natural resources, flora, fauna, humans and their interrelation (ISO 14004, 1996).

**Methodology that will be used**

The environmental significance assessment methodology is based on the following determination:

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

**Determination of Overall Consequence**

Consequence analysis is a mixture of quantitative and qualitative information and the outcome can be positive or negative. Several factors can be used to determine consequence. For the purpose of determining the environmental significance in terms of consequence, the following factors were chosen: **Severity/Intensity, Duration and Extent/Spatial Scale**. Each factor is assigned a rating of 1 to 5, as described in the tables below.

***Determination of Severity / Intensity***

**Severity** relates to the nature of the event, aspect or impact to the environment and describes how severe the aspects impact on the biophysical and socio-economic environment.

Table 6 will be used to obtain an overall rating for severity, taking into consideration the various criteria.

Table 6: Rating of Severity

| Type of criteria | Rating                      |                                 |                         |                   |  |
|------------------|-----------------------------|---------------------------------|-------------------------|-------------------|--|
|                  | 1                           | 2                               | 3                       | 4                 | 5  |
| Quantitative     | 0-20%                       | 21-40%                          | 41-60%                  | 61-80%            | 81-100%                                    |
| Qualitative      | Insignifiant<br>Non-harmful | Small<br>Potentially<br>harmful | Significant/<br>Harmful | Great/<br>harmful | Very<br>Disastrous<br>Extremely<br>harmful |

| Type of criteria   | Rating  |  |  |  |  |
|--|---|--|--|--|--|
|  | 1   | 2  | 3  | 4  | 5  |
| Social/Community response  | Acceptable / I&AP satisfied   | Slightly tolerable / Possible objections       | Intolerable/ Sporadic complaints   | Unacceptable / Widespread complaints                   | Totally unacceptable / Possible legal action   |
| Irreversibility  | Very low cost to mitigate/ High potential to mitigate impacts to level of insignificance/ Easily reversible | Low cost to mitigate                           | Substantial cost to mitigate/ Potential to mitigate impacts/ Potential to reverse impact | High cost to mitigate                                  | Prohibitive cost to mitigate/ Little or no mechanism to mitigate impact Irreversible |
| Biophysical (Air quality, water quantity and quality, waste production, fauna and flora) | Insignificant change / deterioration or disturbance   | Moderate change / deterioration or disturbance | Significant change / deterioration or disturbance  | Very significant change / deterioration or disturbance | Disastrous change / deterioration or disturbance                                     |

**Determination of Duration**

Duration refers to the amount of time that the environment will be affected by the event, risk or impact, if no intervention e.g. remedial action takes place.

**Rating of Duration:**

| Rating | Description                         |
|--------|-------------------------------------|
| 1      | Up to ONE MONTH                     |
| 2      | ONE MONTH to THREE MONTHS (QUARTER) |
| 3      | THREE MONTHS to ONE YEAR            |
| 4      | ONE to TEN YEARS                    |
| 5      | Beyond TEN YEARS                    |

**Determination of Extent/Spatial Scale**

Extent or spatial scale is the area affected by the event, aspect or impact.

**Rating of Extent / Spatial Scale:**

| Rating | Description                                 |
|--------|---|
| 1      | Immediate, fully contained area             |
| 2      | Surrounding area                            |
| 3      | Within Business Unit area of responsibility |
| 4      | Within the farm/neighbouring farm area      |
| 5      | Regional, National, International           |

**Determination of Overall Consequence**

Overall consequence is determined by adding the factors determined above and summarized below, and then dividing the sum by 3.

**Example of calculating Overall Consequence**

| Consequence  | Rating     |
|--|------------|
| Severity   | Example 4  |
| Duration   | Example 2  |
| Extent   | Example 4  |
| <b>SUBTOTAL</b>                                      | <b>10</b>  |
| <b>TOTAL CONSEQUENCE:</b><br>(Subtotal divided by 3) | <b>3.3</b> |

**Determination of Likelihood:**

The determination of likelihood is a combination of Frequency and Probability. Each factor is assigned a rating of 1 to 5, as described below and in tables 6 and 7.

**Determination of Frequency**

Frequency refers to how often the specific activity, related to the event, aspect or impact, is undertaken.

**Rating of Frequency:**

| Rating | Description                               |
|--------|---|
| 1      | Once a year or once/more during operation |
| 2      | Once/more in 6 Months                     |
| 3      | Once/more a Month                         |
| 4      | Once/more a Week                          |
| 5      | Daily                                     |

**Determination of Probability**

Probability refers to how often the activity or aspect has an impact on the environment.

**Rating of Probability:**

| Rating | Description                           |
|--------|---------------------------------------|
| 1      | Almost never / almost impossible      |
| 2      | Very seldom / highly unlikely         |
| 3      | Infrequent / unlikely / seldom        |
| 4      | Often / regularly / likely / possible |
| 5      | Daily / highly likely / definitely    |

**Overall Likelihood**

Overall likelihood is calculated by adding the factors determined above and summarised below, and then dividing the sum by 2.

**Example of calculating Overall Likelihood**

| Consequence  | Rating    |
|--|-----------|
| Frequency  | Example 4 |
| Probability  | Example 2 |
| <b>SUBTOTAL</b>                                    | <b>6</b>  |
| <b>TOTAL LIKELIHOOD</b><br>(Subtotal divided by 2) | <b>3</b>  |

**Determination of Overall Environmental Significance:**

The multiplication of overall consequence with overall likelihood will provide the environmental significance, which is a number that will then fall into a range of **LOW, LOW-MEDIUM, MEDIUM, MEDIUM-HIGH** or **HIGH**, as shown in the table below.

**Determination of Overall Environmental Significance**

| Significance or Risk                     | Low      | Low-Medium | Medium     | Medium-High | High    |
|--|----------|------------|------------|-------------|---------|
| Overall Consequence X Overall Likelihood | 1 - 25.4 | 5 - 9.9    | 10 - 125.4 | 15 – 19.9   | 20 - 25 |

**Qualitative description or magnitude of Environmental Significance**

This description is qualitative and is an indication of the nature or magnitude of the Environmental Significance. It also guides the prioritisations and decision making process associated with this event, aspect or impact.

**Description of Environmental Significance and related action required**

| Significance     | Low   | Low-Medium  | Medium  | Medium-High   | High   |
|------------------|---|---|---|---|--|
| Impact Magnitude | Impact is of very low order and therefore likely to have very little real effect. Acceptable. | Impact is of low order and therefore likely to have little real effect. Acceptable.   | Impact is real, and potentially substantial in relation to other impacts. Can pose a risk to company                  | Impact is real and substantial in relation to other impacts. Pose a risk to the company. Unacceptable | Impact is of the highest order possible. Unacceptable. Fatal flaw.   |
| Action Required  | Maintain current management measures. Where possible improve.                                 | Maintain current management measures. Implement monitoring and evaluate to determine potential increase in risk. Where possible improve | Implement monitoring. Investigate mitigation measures and improve management measures to reduce risk, where possible. | Improve management measures to reduce risk.   | Implement significant mitigation measures or implement alternatives. |

Based on the above, the significance rating scale has been determined as follows:

|               |   |
|---------------|---|
| High          | Of the highest order possible within the bounds of impacts which could occur. In the case of negative impacts, there would be no possible mitigation and / or remedial activity to offset the impact at the spatial or time scale for which it was predicted. In the case of positive impacts, there is no real alternative to achieving the benefit.                                 |
| Medium-High   | Impacts of a substantial order. In the case of negative impacts, mitigation and / or remedial activity would be feasible but difficult, expensive, time-consuming or some combination of these. In the case of positive impacts, other means of achieving this benefit would be feasible, but these would be more difficult, expensive, time-consuming or some combination of these.  |
| Medium        | Impact would be real but not substantial within the bounds of those, which could occur. In the case of negative impacts, mitigation and / or remedial activity would be both feasible and fairly easily possible, In case of positive impacts; other means of achieving these benefits would be about equal in time, cost and effort.   |
| Low-Medium    | Impact would be of a low order and with little real effect. In the case of negative impacts, mitigation and / or remedial activity would be either easily achieved or little would be required, or both. In case of positive impacts alternative means for achieving this benefit would likely be easier, cheaper, more effective, less time-consuming, or some combination of these. |
| Low           | Impact would be negligible. In the case of negative impacts, almost no mitigation and or remedial activity would be needed, and any minor steps, which might be needed, would be easy, cheap and simple. In the case of positive impacts, alternative means would almost all likely be better, in one or a number of ways, than this means of achieving the benefit                   |
| Insignificant | There would be a no impact at all – not even a very low impact on the system or any of its parts.   |

**vii. The positive and negative impacts that the proposed activity (in terms of the initial site layout) and alternatives will have on the environment and the community that may be affected.**

(Provide a discussion in terms of advantages and disadvantages of the initial site layout compared to alternative layout options to accommodate concerns raised by affected parties)

**Site Alternative 1 (S1) (Preferred Alternative):**

**Positive Impacts:**

- The mining site offers the mineral sought after;
- The proposed sites were previously used for mining activities, thus minimal environmental damage will occur;
- The mining area can be reached by an existing farm access road that connects to the R723. No new road infrastructure need to be constructed;
- Due to the small size of the activity and the remote location of the mining area the potential impacts on the surrounding environment, associated with mining is deemed to be of low significance; and
- No residual waste as a result of the mining activity will be produced that needs to be treated on site. Any general waste that may be produced on-site will be contained in sealed refuse bins to be transported to the local municipal landfill site. As maintenance and servicing of the equipment will be done at an off-site workshop the amount of hazardous waste to be produced at the site will be minimal and will mainly be as a result of accidental leakage. Contaminated soil will be removed to the depth of the spillage and contained in sealed bins until removed from site by a hazardous waste handling contractor to be disposed of at a registered hazardous waste handling site.

**Negative Impacts:**

- Due to the remote location of the mining area very little negative impacts on the community could be identified that were deemed to be of significant importance. The dust and noise impacts that may emanate from the mining area during the operational phase could have a negative impact on the surrounding community if the mitigation measures proposed in this document is not implemented and managed on-site; and
- Negative impacts with regard to the environment include potential contamination of the area due to spillage of hydrocarbon products.



## **Site Alternative 2 (S2)**

### **Positive Impacts:**

- The site is near the mineral sought after;
- The alternative area will not have to compete with other land uses as all the activities can be contained within the boundaries of the site. Upon closure of the mining area, the land will revert back to agriculture; and
- The aggregate to be mined will be used for the upgrading of the roads in the vicinity of the activity. The alternative mining area will therefore contribute to the upgrading/maintenance of infrastructure in and around Koppies / Parys area and indirectly contribute to the economy of the area.

### **Negative Impacts:**

- The site has not been previously disturbed before; thus the natural area needs to be cleared and is not preferred with regards to sustainable development;
- In the light of the above the impacts associated with establishing another quarry pit in a greenfield site on the property is believed to have a higher significance without the need or motivation to justify it;
- The dust and noise impacts that may emanate from the mining area during the operational phase could have a negative impact on the surrounding land users if the mitigation measures proposed in this document is not implemented and managed on-site; and
- Negative impacts with regard to the environment include potential contamination of the area due to spillage of hydrocarbon products.

### **viii. The possible mitigation measures that could be applied and the level of risk.**

(With regard to the issues and concerns raised by affected parties provide a list of the issues raised and an assessment/discussion of the mitigation or site layout alternatives available to accommodate or address their concerns, together with an assessment of the impacts or risks associated with the mitigation or alternatives considered)

### **Visual Mitigation:**

The risk of the proposed mining activity having a negative impact on the aesthetic quality of the surrounding environment can be reduced to a low – medium risk through the implementation of the mitigation measures listed below:

- The site needs to have a neat appearance and be kept in good condition at all times.
- Upon closure the site needs to be rehabilitated to insure that the visual impact on the aesthetic value of the area is kept to a minimum.

**Dust Handling:**

The risk of dust, generated from the proposed mining activity, having a negative impact on the surrounding environment can be reduced to being low through the implementation of the mitigation measures listed below:

- The liberation of dust into the surrounding environment must be effectively controlled by the use of, inter alia, water spraying and/or other dust-allaying agents.
- The site manager must ensure continuous assessment of all dust suppression equipment to confirm its effectiveness in addressing dust suppression.
- Speed on the access roads must be limited to 40km/h to prevent the generation of excess dust.
- Roads must 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.

**Noise Handling:**

The risk of noise, generated from the proposed mining activity, having a negative impact on the surrounding environment can be reduced to being low-medium through the implementation of the mitigation measures listed below:

- The applicant must ensure that employees and staff conduct themselves in an acceptable manner while on site, both during work hours and after hours.
- No loud music may be permitted at the mining area.
- All mining vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the Road Transport Act.

**Management of Weed Or Invader Plants:**

The risk of weeds or invader plants invading the disturbed area can be reduced to being low through the implementation of the mitigation measures listed below:

- A weed and invader plant control management plan must be implemented at the site to ensure eradication of all listed invader plants in terms of the National Environmental Biodiversity Act [NEMBA] (Act No. 10 of 2004) Alien and Invasive Species Regulation GNR 598 and 599 of 2014 Species regarded as need to be eradicated from the site on final closure.
- Management must take responsibility to control declared invader or exotic species on the rehabilitated areas. The following control methods can be used:
  - "The plants can be uprooted, felled or cut off and can be destroyed completely."
  - "The plants can be treated with an herbicide that is registered for use in connection therewith and in accordance with the directions for the use of such an herbicide."

- The temporary topsoil stockpiles need to be kept free of weeds.

### **Storm Water Handling:**

The risk of contamination through dirty storm water escaping from work areas, or erosion or loss of stockpiled topsoil caused due to uncontrolled storm water flowing through the mining area can be reduced to being low through the implementation of the mitigation measures listed below:

- Storm water must be diverted around the topsoil heaps, and access roads to prevent erosion and loss of material.
- Mining must be conducted only in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and waste management, developed by the Department of Water and Sanitation (DWS), and any other conditions which that Department may impose:
  - Runoff water should be diverted around the site areas with trenches and contour structures to prevent erosion of the work areas.
  - Clean water (e.g. rainwater) must be kept clean and be routed to a natural watercourse by a system separate from the dirty water system. You must prevent clean water from running or spilling into dirty water systems.
  - Dirty water must be collected and contained in a system separate from the clean water system.
  - Dirty water must be prevented from spilling or seeping into clean water systems.
  - The storm water management plan must apply for the entire life cycle of the mining activity and over different hydrological cycles (rainfall patterns).
  - The statutory requirements of various regulatory agencies and the interests of stakeholders must be considered and incorporated into the storm water management plan.

### **Handling of Hazardous Materials and Substances:**

- All hazardous materials or substances should be stored in a closed storage facility with an impermeable floor.
- The storage area should meet the following conditions:
  - The storage area should be constructed on a level area to prevent offsite migration of any spilled product.
  - The floor of the storage area should be impermeable to prevent seepage of spilled products into the ground or ground water.
  - The storage area should be out of any 1:100-year flood line or further than 100m from an edge of a watercourse, whichever is greatest.

- The facility should be such that access to the materials/substances can only take place with the prior notification of an appropriate staff member.
- All fuel storage tanks should have secondary containment in the form of an impermeable bund wall and base within which the tanks sits, raised above the floor, on plinths. This bund capacity should be sufficient to contain 110% of the tank's maximum capacity.
- The distance and height of the bund wall relative to that of the tank should also be taken into consideration to ensure that any spillage does not result in oil spouting beyond the confines of the bund.
- The site manager should establish a formal inspection routine to check all equipment in the bund area, as well as the bund area itself for malfunctions or leakages. The bund area should be inspected at least weekly and any accumulated rainwater removed. All valves and outlets should be checked to ensure that they are intact and closed securely.
- The bund base must slope towards a rainwater sump of sufficient size.
- Contaminated water may not be allowed to mix with clean water, and contained until it can be collected by a registered hazardous waste handling contractor or be disposed of at a registered hazardous waste handling facility.
- Drip trays should be available to be placed underneath all stationary equipment or vehicles.
- The layer of material at the vehicle service area should be removed and if contaminated with hazardous substances such as hydrocarbons should be disposed of as hazardous waste by an appropriately qualified waste handling contractor. The compacted areas should be ripped and the topsoil returned over the area.
- The site should be cleared of all hazardous substances once decommissioning has been completed and should be disposed of by an appropriately qualified waste handling contractor.

### **Waste Management:**

The risk of waste generation having a negative impact on the surrounding environment can be reduced to being low through the implementation of the mitigation measures listed below:

- No waste stockpile area may be established outside the boundaries of the mining area.
- Vehicle maintenance may only take place within the service bay area.
- The diesel bowser needs to be equipped with a drip tray at all times. Drip trays have to be used during each and every refuelling event.
- The nozzle of the bowser needs to rest in a sleeve to prevent dripping after refuelling.
- Site management must ensure drip trays are cleaned after each use. No dirty drip trays may be used on site.

- Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognised facility.
- Spills must be cleaned up immediately to the satisfaction of the Regional Manager by removing the spillage together with the polluted soil and by disposing it at a recognised facility. Proof should be filed.
- Suitable covered receptacles should be available at all times and conveniently placed for the disposal of waste.
- Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc, should be stored in a container with a closable lid at a collecting point and collected on a regular basis and disposed of at a recognised landfill site. Specific precautions should be taken to prevent refuse from being dumped on or in the vicinity of the mine area.
- Biodegradable refuse generated should be handled as indicated above.
- Water from the wash bay should drain into the oil sump from where it should be removed by an approved contractor.
- Drip trays should be available to be placed underneath all stationary equipment or vehicles.
- Waste material of any description, including receptacles, scrap, rubble and tyres, should be removed entirely from the mining area and disposed of at a recognized landfill facility once decommissioning has been completed. It will not be permitted to be buried or burned on the site.

### **Management of Health and Safety Risks:**

The health and safety risk, posed by the proposed mining activity can be reduced to being low through the implementation of the mitigation measures listed below:

- Workers must have access to the correct personal protection equipment (PPE) as required by law.
- All operations must comply with the Occupational Health and Safety Act.

### **Protection of Fauna and Flora:**

The risk on the fauna and flora of the footprint area as well as the surrounding environment, as a result of the proposed mining activity, can be reduced to being low through the implementation of the mitigation measures listed below:

- The site manager should ensure that no fauna is caught, killed, harmed, sold or played with.
- Workers should be instructed to report any animals that may be trapped in the working area.
- No snares may be set or nests raided for eggs or young.

- ❖ No plants or trees may be removed without the approval of the ECO.
- ❖ Clearing of vegetation has to be restricted to the smallest possible area.

### **Management of Access Roads:**

The risk on the condition of the roads, as a result of the proposed mining activities, can be reduced to being low-medium through the implementation of the mitigation measures listed below:

- ❖ Storm water should be diverted around the access roads to prevent erosion.
- ❖ Erosion of access road: Vehicular movement must be restricted to existing access routes to prevent crisscrossing of tracks through undisturbed areas. Rutting and erosion of the access road caused as a result of the mining activity should be repaired by the applicant.
- ❖ On completion of mining operations, the surface of these areas, if compacted due to hauling and dumping operations, should be scarified to a depth of at least 300 mm and graded to an even surface condition and the previously stored topsoil should be returned to its original depth over the area.

### **Topsoil Handling:**

The risk of loss of topsoil can be reduced to being low through the implementation of the mitigation measures listed below:

- ❖ Where applicable the first 300 mm of topsoil should be removed in strips and stored along the boundary of the mining area. Stockpiling of topsoil must be done to protect it from erosion, mixing with overburden or other material. The topsoil must be used to cover the rehabilitated area and improve the establishment of natural vegetation.
- ❖ The temporary topsoil stockpiles should be kept free of weeds.
- ❖ Topsoil stockpiles should be placed on a levelled area and measures should be implemented to safeguard the piles from being washed away in the event of heavy rains/storm water.
- ❖ Topsoil heaps should not exceed 1.5 m in order to preserve micro-organisms within the topsoil, which can be lost due to compaction and lack of oxygen.
- ❖ Should natural vegetation not establish on the heaps within 6 months of stockpiling it should be planted with an indigenous grass species.
- ❖ Storm- and runoff water should be diverted around the topsoil stockpiles and access roads to prevent erosion.

### **ix) The outcome of the site selection Matrix. Final Site Layout Plan**

(Provide a final site layout plan as informed by the process of consultation with interested and affected parties)

See the map indicating site activities attached as Appendix B.



**ix. Motivation where no alternative sites were considered.**

Not applicable.

**x. Statement motivating the preferred site.**

(Provide a statement motivating the final site layout that is proposed)

Inzalo Crushing and Aggregates, identified the need for gravel / aggregate in the area due to an increase in building, construction and road maintenance projects. As mentioned earlier the quarry pit on the property of the applicant has previously been used for mining purposes. In this light the applicant identified the proposed (site alternative 1) area as preferred and only viable site alternative. The facts that the existing quarry have not yet been mined out and will be extended were found to be the best option contrary to sustainable development in terms of site alternative 2.

**i) Plan of study for the Environmental Impact Assessment process**

**i. Description of alternatives to be considered including the option of not going ahead with the activity.**

The applicant identified two alternative sites for the proposed mining activity namely:

- 1. Site Alternative 1 (S1) (Preferred Alternative):** The Applicant, Inzalo Crushing and Aggregates intends to apply for a mining right, 25.4 ha on the remaining extent of farm Bloemhof 14, within the boundaries of the following GPS Coordinates:

| Preferred Alternative         |                                    |
|-------------------------------|------------------------------------|
| Decimal Degrees               | Degrees; Minutes: Seconds          |
| ➤ A27.0548894°S; 27.5625444°E | ➤ A27°3'17.6018"S; 27°33'45.1598"E |
| ➤ B27.0513029°S; 27.5650583°E | ➤ B27°3'4.6904"S; 27°33'54.2099"E  |
| ➤ C27.0483198°S; 27.5596529°E | ➤ C27°2'53.9513"S; 27°33'34.7504"E |
| ➤ D27.0502365°S; 27.5575594°E | ➤ D27°3'0.8514"S; 27°33'27.2138"E  |
| ➤ A27.0548894°S; 27.5625444°E | ➤ A27°3'17.6018"S; 27°33'45.1598"E |



Figure 14: Satellite view showing the position of Site Alternative 1 indicated in red.

Site Alternative 1 was identified during the assessment phase of the environmental impact assessment, by the applicant and project team, and was therefore selected as the **preferred alternative** due to the following:

- The mining site offers the mineral sought after;
- The proposed footprint area was previously used for mining therefore very little indigenous vegetation needs to be disturbed in order to establish the mining area;
- The site is located approximately 500m from the closest farm house with mitigation measures in place impacts such as dust and noise will be minimal.
- The mining site is more than 25 km away for the town of closest town Koppies, and will not affect the community with regards to dust and noise;
- The mineral to be mined is already in aggregate form and will not need to be blasted in order to loosen the material;
- The mining area can be reached by an existing farm access road that connects to R723. No new road infrastructure need to be constructed;

- Due to the small size of the activity and the remote location of the mining area the potential impacts on the surrounding environment, associated with mining is deemed to be of low significance; and
- No residual waste as a result of the mining activity will be produced that needs to be treated on site. Any general waste that may be produced on-site will be contained in sealed refuse bins to be transported to the local municipal landfill site. The amount of hazardous waste to be produced at the site will be minimal and will mainly be as a result of accidental leakage. Contaminated soil will be removed to the depth of the spillage and contained in sealed bins until removed from site by a hazardous waste handling contractor to be disposed of at a registered hazardous waste handling site.

2. **Site Alternative 2 (S2):** Site Alternative 2 entails the mining of a 25.4 ha area within the boundaries of the following GPS Coordinates:

| Site Alternative              |                                    |
|-------------------------------|------------------------------------|
| Decimal Degrees               | Degrees; Minutes; Seconds          |
| ■ A27.05248°S; 27.5601234°E   | ■ A27°3'8.928"S; 27°33'36.4442"E   |
| ■ B27.0497502°S; 27.5622447°E | ■ B27°2'59.1007"S; 27°33'44.0809"E |
| ■ C27.0518223°S; 27.5660146°E | ■ C27°3'6.5603"S; 27°33'57.6526"E  |
| ■ D27.0560016°S; 27.5637109°E | ■ D27°3'21.6058"S; 27°33'49.3592"E |
| ■ A27.05248°S; 27.5601234°E   | ■ A27°3'8.928"S; 27°33'36.4442"E   |

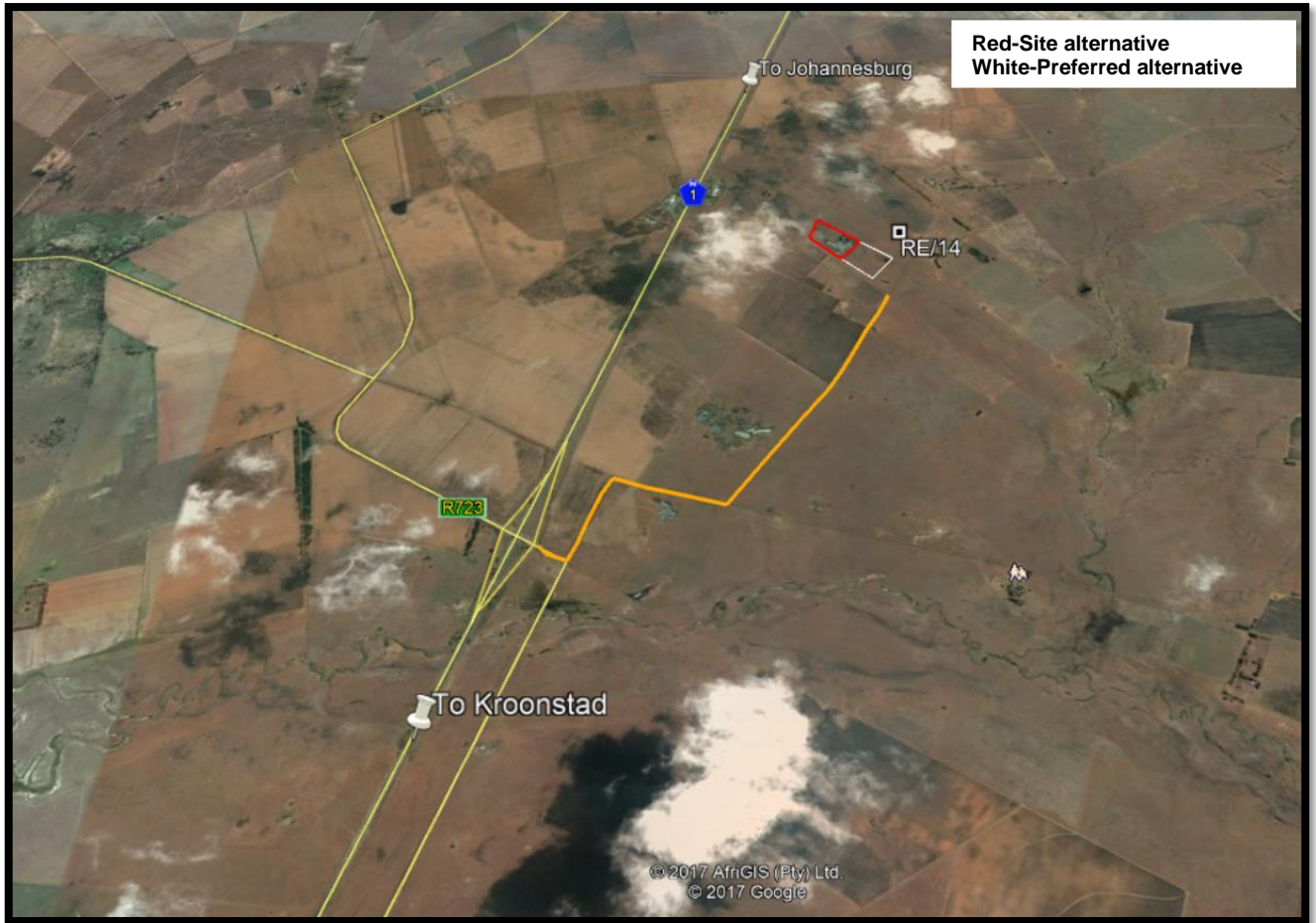


Figure 15: Satellite view showing the position of Site Alternative 2 in white

The applicant investigates the possibility of establishing the proposed mining area next to the old mining area, to be located closer to the haul road to cut down on transport cost. This alternative was however found **not** to be the **preferred** alternative due to the following reasons:

- The site alternative will counteract the visual aesthetic value of the area by being closer to the road;
- The site has not been previously disturbed before; thus the natural area needs to be cleared and is not preferred with regards to sustainable development; and
- In the light of the above the impacts associated with establishing another quarry pit in a greenfield site on the property is believed to have a higher significance without the need or motivation to justify it.

### 3. No-go Alternative:

The no-go alternative entails no change to the status quo and is therefore a real alternative that needs to be considered.

The aggregate to be stockpiled at the site will be used for road and construction industries, if however, the no-go alternative is implemented the applicant will not be able to utilize the mineral present in the area.

This could have major impacts on aspects such as transporting of material to construction sites from far off mining areas, cost effectiveness of material, impact on roads and road users due to long distance hauling of gravel and loss of income to the Koppies / Parys business area due to the multiplier effect.

The no-go alternative was not deemed to be the preferred alternative as:

- The applicant will not be able to supply in the demand of road or construction contractors,
- The application, if approved, would allow the applicant to utilize the available aggregates as well as provide employment opportunities to local employees. Should the no-go alternative be followed these opportunities will be lost to the applicant, potential employees and clients,
- The applicant will not be able to diversify the income of the property.

## ii. Description of the aspects to be assessed as part of the environmental impact assessment process

(The EAP must undertake to assess the aspects affected by each individual mining activity whether listed or not, including activities such as blasting, Loading, hauling and transport, and mining activities such as Excavations, stockpiles, discard dumps or dams, water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc.etc.etc.)

Environmental aspects to be assessed as part of the EIA process will include the following:

### 1. Visual exposure:

- The mining area was identified to constitute the lowest possible visual impact on the surrounding environment. The surrounding area has previously been disturbed by mining activities, and this application entails the extension of the existing mining area.
- 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.



## 2. Vegetation:

- The proposed (site alternative 1) footprint area identified for the processing activity has previously been disturbed by agricultural processes and mining therefore no natural areas or vegetation needs to be disturbed as a result of the proposed project.
- The alternative site (site alternative 2) is in a new area, vegetation clearance and topsoil removal need to be done in the riparian zone of an artificial wetland if pursued.
- Although the site alternative (Site alternative 2) offers, the mineral sought after the mining area will be within 100 m from an artificial wetland. This will necessitate a water use license application to be approved by DWS prior to commencement of the mining activities.

## 3. Land Use:

- The proposed quarry will be established in an area that was previously used for mining purposes as well as agriculture. The quarry will therefore not have to compete with other land uses at the site. Upon closure of the mining area, the land will revert back to agricultural grazing.
- Due to the remote location of the quarry very little to no negative impacts on the community could be identified that were deemed to be of significant importance. The dust and noise impacts that may emanate from the mining area during the operational phase could have a negative impact on the surrounding community if the mitigation measures proposed in this document is not implemented and managed on-site.

## 4. Surface and Groundwater

- The proposed (Site alternative 1) processing area will be more than 100m from any natural water source.
- The alternative site (Site Alternative 2) will be within an artificial wetland Riparian and channel.
- Storm water management and erosion prevention measures must be implemented on-site.

## 5. Cultural and Heritage Environment:

- No sites of archaeological or cultural importance were identified during the site inspection as the site has been extensively used for mining and agriculture purposes. Inzalo Crushing and Aggregates (Pty) Ltd will make use of temporary infrastructure during the mining operations. Workers will be transported to and from the site daily.

## 6. Air Quality and Dust:

- The background air quality of the surrounding area is relatively good due to low industrial activity. Factors contributing to air pollution are the burning of veld and agriculture in the area.



Given the surrounding extent of mostly covered areas, no extreme dust generation under windy conditions is experienced.

- Dust will be generated by the proposed operation through blasting and the movement of machinery and vehicles. Dust suppression measures should be implemented to prevent excessive dust on site. Due to the remote setting of the proposed mining area the potential impact of dust nuisance on the surrounding environment is deemed to be of low significance.
- Speed on the access road will be limited to 40km/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.

#### 7. Noise:

- The surrounding areas are characterised by an agricultural setting in which vehicles and farm equipment operate.
- The traffic on the N1 and other public roads surrounding the property contributes to the ambient noise of the area.
- The noise to be generated at the proposed quarry operation is expected to temporarily increase the noise levels of the area.
- It will be ensured that employees and staff conduct themselves in an acceptable manner while on site.
- All mining vehicles will be equipped with silencers and maintained in a road worthy condition in terms of the Road Transport Act.
- Surrounding land owners will be notified in writing prior to blasting occasions.
- Blasting noise will be instantaneous and of short duration occurring only twice a month. The type, duration and timing of the blasting procedures will be planned with due cognisance of other land users and structures in the vicinity.
- Loading and transportation of the material will generate noise daily.
- The significance of noise on the surrounding environment is therefore deemed to be of low significance. Mitigation measures should be implemented to ensure employees conduct them in an acceptable manner while on site in order to lessen the noise impact of the proposed activity on the surrounding environment.

#### 8. Ablution, Waste Water & Waste Disposal:

- Ablution facilities will consist of chemical toilets or temporary ablution facilities with septic tank 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.
- 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.

#### 9. Access Route:

- The existing farm road to the area will be used to provide the applicant with access.
- 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 new roads will be selected as far as possible to avoid watercourses and steep gradients. Adequate drainage and erosion protection in the form of cut-off berms or trenches will be provided where necessary.
- The roads to be established to the site will be below the threshold of the EIA regulations of the National Environmental Management Act, 1998 (Act No. 107 of 1998) as amended June 2014.

#### iii. **Description of aspects to be assessed by specialists**

No specialist studies were deemed necessary for this project as the project entails the establishment of the mining area over an area previously used for agriculture and mining.

#### iv. **Proposed method of assessing the environmental aspect including the proposed method of assessing alternative**

### **Methodology for the assessment of the potential environmental, social and cultural impacts**

#### **DEFINITIONS AND CONCEPTS:**

##### **Environmental significance:**

The concept of significance is at the core of impact identification, evaluation and decision-making. The concept remains largely undefined and there is no international consensus on a single definition. The following common elements are recognised from the various interpretations:

- Environmental significance is a value judgement
- The degree of environmental significance depends on the nature of the impact

- The importance is rated in terms of both biophysical and socio-economic values
- Determining significance involves the amount of change to the environment perceived to be acceptable to affected communities.

Significance can be differentiated into impact magnitude and impact significance. Impact magnitude is the measurable change (i.e. intensity, duration and likelihood). Impact significance is the value placed on the change by different affected parties (i.e. level of acceptability) (DEAT (2002) Impact Significance, Integrated Environmental Management, Information Series 5).

The concept of risk has two dimensions, namely the consequence of an event or set of circumstances, and the likelihood of particular consequences being realised (Environment Australia (1999) Environmental Risk Management).

### **Impact**

The positive or negative effects on human well-being and / or the environment.

### **Consequence**

The intermediate or final outcome of an event or situation OR it is the result, on the environment, of an event.

### **Likelihood**

A qualitative term covering both probability and frequency.

### **Frequency**

The number of occurrences of a defined event in a given time or rate.

### **Probability**

The likelihood of a specific outcome measured by the ratio of a specific outcome to the total number of possible outcomes.

**Environment**

Surroundings in which an organisation operates, including air, water, land, natural resources, flora, fauna, humans and their interrelation (ISO 14004, 1996).

**Methodology that will be used**

The environmental significance assessment methodology is based on the following determination:

**Environmental Significance = Overall Consequence X Overall Likelihood**

**Determination of Overall Consequence**

Consequence analysis is a mixture of quantitative and qualitative information and the outcome can be positive or negative. Several factors can be used to determine consequence. For the purpose of determining the environmental significance in terms of consequence, the following factors were chosen: **Severity/Intensity, Duration and Extent/Spatial Scale**. Each factor is assigned a rating of 1 to 5, as described in the tables below.

***Determination of Severity / Intensity***

**Severity** relates to the nature of the event, aspect or impact to the environment and describes how severe the aspects impact on the biophysical and socio-economic environment.

Table 7 will be used to obtain an overall rating for severity, taking into consideration the various criteria.

Table 7: Rating of Severity

| Type of criteria           | Rating  |  |  |                                      |  |
|----------------------------|---|--|--|--------------------------------------|--|
|                            | 1   | 2  | 3  | 4                                    | 5  |
| Quantitative               | 0-20%   | 21-40%                                   | 41-60%   | 61-80%                               | 81-100%  |
| Qualitative                | Insignifiant / Non-harmful  | Small / Potentially harmful              | Significant/ Harmful   | Great/ Very harmful                  | Disastrous Extremely harmful   |
| Social/ Community response | Acceptable / I&AP satisfied   | Slightly tolerable / Possible objections | Intolerable/ Sporadic complaints   | Unacceptable / Widespread complaints | Totally unacceptable / Possible legal action   |
| Irreversibility            | Very low cost to mitigate/ High potential to mitigate impacts to level of insignificance/ Easily reversible | Low cost to mitigate                     | Substantial cost to mitigate/ Potential to mitigate impacts/ Potential to reverse impact | High cost to mitigate                | Prohibitive cost to mitigate/ Little or no mechanism to mitigate impact Irreversible |
| Biophysical                | Insignificant change /  | Moderate change /                        | Significant change /   | Very significant change /            | Disastrous change /  |

| Type of criteria   | Rating                       |                              |                              |                              |                              |
|--|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
|  | 1                            | 2                            | 3                            | 4                            | 5                            |
| (Air quality, water quantity and quality, waste production, fauna and flora) | deterioration or disturbance | deterioration or disturbance | deterioration or disturbance | deterioration or disturbance | deterioration or disturbance |

**Determination of Duration**

Duration refers to the amount of time that the environment will be affected by the event, risk or impact, if no intervention e.g. remedial action takes place.

**Rating of Duration:**

| Rating | Description                         |
|--------|-------------------------------------|
| 1      | Up to ONE MONTH                     |
| 2      | ONE MONTH to THREE MONTHS (QUARTER) |
| 3      | THREE MONTHS to ONE YEAR            |
| 4      | ONE to TEN YEARS                    |
| 5      | Beyond TEN YEARS                    |

**Determination of Extent/Spatial Scale**

Extent or spatial scale is the area affected by the event, aspect or impact.

**Rating of Extent / Spatial Scale:**

| Rating | Description                                 |
|--------|---|
| 1      | Immediate, fully contained area             |
| 2      | Surrounding area                            |
| 3      | Within Business Unit area of responsibility |
| 4      | Within the farm/neighbouring farm area      |
| 5      | Regional, National, International           |

**Determination of Overall Consequence**

Overall consequence is determined by adding the factors determined above and summarized below, and then dividing the sum by 3.

**Example of calculating Overall Consequence**

| Consequence  | Rating     |
|--|------------|
| Severity   | Example 4  |
| Duration   | Example 2  |
| Extent   | Example 4  |
| <b>SUBTOTAL</b>                                      | <b>10</b>  |
| <b>TOTAL CONSEQUENCE:</b><br>(Subtotal divided by 3) | <b>3.3</b> |

**Determination of Likelihood:**

The determination of likelihood is a combination of Frequency and Probability. Each factor is assigned a rating of 1 to 5, as described below and in tables 6 and 7.

***Determination of Frequency***

Frequency refers to how often the specific activity, related to the event, aspect or impact, is undertaken.

**Rating of Frequency:**

| Rating | Description                               |
|--------|---|
| 1      | Once a year or once/more during operation |
| 2      | Once/more in 6 Months                     |
| 3      | Once/more a Month                         |
| 4      | Once/more a Week                          |
| 5      | Daily                                     |

***Determination of Probability***

Probability refers to how often the activity or aspect has an impact on the environment.

**Rating of Probability:**

| Rating | Description                           |
|--------|---------------------------------------|
| 1      | Almost never / almost impossible      |
| 2      | Very seldom / highly unlikely         |
| 3      | Infrequent / unlikely / seldom        |
| 4      | Often / regularly / likely / possible |
| 5      | Daily / highly likely / definitely    |



**Overall Likelihood**

Overall likelihood is calculated by adding the factors determined above and summarised below, and then dividing the sum by 2.

**Example of calculating Overall Likelihood**

| Consequence  | Rating    |
|--|-----------|
| Frequency  | Example 4 |
| Probability  | Example 2 |
| <b>SUBTOTAL</b>                                    | <b>6</b>  |
| <b>TOTAL LIKELIHOOD</b><br>(Subtotal divided by 2) | <b>3</b>  |

**Determination of Overall Environmental Significance:**

The multiplication of overall consequence with overall likelihood will provide the environmental significance, which is a number that will then fall into a range of **LOW, LOW-MEDIUM, MEDIUM, MEDIUM-HIGH** or **HIGH**, as shown in the table below.

**Determination of Overall Environmental Significance**

| Significance or Risk                           | Low     | Low-Medium | Medium    | Medium-High | High    |
|--|---------|------------|-----------|-------------|---------|
| Overall Consequence<br>X<br>Overall Likelihood | 1 - 4.9 | 5 - 9.9    | 10 - 14.9 | 15 – 19.9   | 20 - 25 |

**Qualitative description or magnitude of Environmental Significance**

This description is qualitative and is an indication of the nature or magnitude of the Environmental Significance. It also guides the prioritisations and decision making process associated with this event, aspect or impact.

**Description of Environmental Significance and related action required**

| Significance        | Low   | Low-Medium  | Medium  | Medium-High   | High   |
|---------------------|---|---|---|---|--|
| Impact<br>Magnitude | Impact is of very low order and therefore likely to have very little real effect. Acceptable. | Impact is of low order and therefore likely to have little real effect. Acceptable.   | Impact is real, and potentially substantial in relation to other impacts. Can pose a risk to company                  | Impact is real and substantial in relation to other impacts. Pose a risk to the company. Unacceptable | Impact is of the highest order possible. Unacceptable. Fatal flaw.   |
| Action<br>Required  | Maintain current management measures. Where possible improve.                                 | Maintain current management measures. Implement monitoring and evaluate to determine potential increase in risk. Where possible improve | Implement monitoring. Investigate mitigation measures and improve management measures to reduce risk, where possible. | Improve management measures to reduce risk.   | Implement significant mitigation measures or implement alternatives. |

Based on the above, the significance rating scale has been determined as follows:

|               |   |
|---------------|---|
| High          | Of the highest order possible within the bounds of impacts which could occur. In the case of negative impacts, there would be no possible mitigation and / or remedial activity to offset the impact at the spatial or time scale for which it was predicted. In the case of positive impacts, there is no real alternative to achieving the benefit.                                 |
| Medium-High   | Impacts of a substantial order. In the case of negative impacts, mitigation and / or remedial activity would be feasible but difficult, expensive, time-consuming or some combination of these. In the case of positive impacts, other means of achieving this benefit would be feasible, but these would be more difficult, expensive, time-consuming or some combination of these.  |
| Medium        | Impact would be real but not substantial within the bounds of those, which could occur. In the case of negative impacts, mitigation and / or remedial activity would be both feasible and fairly easily possible, In case of positive impacts; other means of achieving these benefits would be about equal in time, cost and effort.   |
| Low-Medium    | Impact would be of a low order and with little real effect. In the case of negative impacts, mitigation and / or remedial activity would be either easily achieved or little would be required, or both. In case of positive impacts alternative means for achieving this benefit would likely be easier, cheaper, more effective, less time-consuming, or some combination of these. |
| Low           | Impact would be negligible. In the case of negative impacts, almost no mitigation and or remedial activity would be needed, and any minor steps, which might be needed, would be easy, cheap and simple. In the case of positive impacts, alternative means would almost all likely be better, in one or a number of ways, than this means of achieving the benefit                   |
| Insignificant | There would be a no impact at all – not even a very low impact on the system or any of its parts.   |

#### **v. The proposed method of assessing duration significance**

The significance of the identified impacts will be determined using the approach outlined in Section 2 vi) Methodology Used in Determining and Ranking the Significance. The environmental significance assessment methodology is based on the Overall Consequence x Overall Likelihood.

Consequence analysis is a mixture of quantitative and qualitative information and the outcome can be positive or negative. For the purpose of determining the environmental significance in terms of consequence, the following factors were chosen: Severity/Intensity, Duration and Extent/Spatial Scale.

The determination of likelihood is a combination of Frequency and Probability.

The multiplication of overall consequence with overall likelihood will provide the environmental significance, which is a number that will then fall into a range of LOW, LOW-MEDIUM, MEDIUM, MEDIUM-HIGH or HIGH.

Qualitative description or magnitude of Environmental Significance is qualitative and is an indication of the nature or magnitude of the Environmental Significance. It also guides the prioritisations and decision making process associated with this event, aspect or impact.

Assessing duration significance forms part of the environmental significance determination of the impacts and will be assessed accordingly.

#### **vi. The stages at which the competent authority will be consulted**

The EAP has been in continuous consultation with the competent authority (DMR) throughout the application process. DMR was contacted during the application phase, requested to comment on the Final Scoping Report during the Scoping Phase and no response has been received.

Should DMR accept the Final Scoping Report the draft EIA report, including all investigations, assessments and specialist studies, will be submitted to DMR for comments. Any additional requirements will be added to the Final EIA report to be submitted to DMR for approval. Upon receipt of the Environmental Authorisation the EAP will be in consultation with DMR until granting of Mining Right.

It is proposed that the EIA process will entail the following steps:

1. Application for Mining Right and Environmental Authorisation to DMR;
2. DMR responds with reference number;
3. Draft Scoping Report for perusal by I&AP's and stakeholders (including DMR);
4. Final Scoping Report (FSR) submitted to DMR;
5. DMR decision on FSR;

6. Draft EIA report for perusal by I&AP's and stakeholders (including DMR);
7. Final EIA report submitted to DMR;
8. DMR decision on Final EIA report; and
9. Issuing of Mining Right.

**vii. Particulars of the public participation process with regard to the Impact Assessment process that will be conducted**

**1. Steps to be taken to notify interested and affected parties.**

(These steps must include the steps that will be taken to ensure consultation with the affected parties identified in (h) (ii) herein).

The aspects to be assessed as part of the environmental impact assessment process will be added to the draft EIA report that will be distributed to all registered I&AP's and stakeholders for a 30 days commenting period.

The I&AP's and Stakeholders to be provided with the Draft EIA report for their perusal will include the following:

The Land owner:

- Mnr. JP Coetzee

The following adjacent neighbours:

- Boden Family Trust

The following Municipal stakeholders:

- Ngwathe Local Municipality- Mr Pule Tshekedi (Acting);
- Ngwathe Local Municipality Ward 8-Cllr Rosie Kgantsie; and
- Fezile Dabi District Municipality- MS LM Molibeli.

The following Government Departments and organs of state:

- Department of Economic Small Business;
- Development of Tourism and Environmental Affairs (DETEA);
- Department of Public Works and Infrastructure;
- Department of Agriculture and Rural Development;
- Department of Labour;

- Department of Police, Roads and Transport;
- Department of Water Affairs & Sanitation;
- South African Heritage Resources Agency;
- Eskom; and
- SANRAL Regional Offices.

All issues, comments and recommendations received on the Draft EIA report will be incorporated into the Final EIA report and EMPr to be submitted to DMR for approval.

## **2. Details of the engagement process to be followed**

(Describe the process to be undertaken to consult interested and affected parties including public meetings and one on one consultation. NB the affected parties must be specifically consulted regardless of whether or not the attended public meetings and records of such consultation will be required in the EIA at a later stage).

Public participation during the impact assessment phase of the EIA will entail a review of the findings of the EIA, presented in the Draft EIA and EMPr Reports. These reports will be made available for public comment as described above.

I&APs will be advised timeously of the availability of these reports and how to obtain them. They will be encouraged to comment in writing (mail or email). Ample notification of due dates will be provided.

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 DMR for a decision about the proposed project.

## **3. Description of the information to be provided to Interested and Affected Parties.**

(Information to be provided must include the initial site plan and sufficient detail of the intended operation and the typical impacts of each activity, to enable them to assess what impact the activities will have on them or on the use of their land.)

The Draft EIA report will be the subsequent document circulated to the registered I&AP's and stakeholders for their perusal.



The Environmental Impact Assessment Report and Environmental Management Programme Report template prescribed by DMR in terms of the National Environmental Management Act, 1998 in respect of listed activities that have been triggered by applications in terms of the MPRDA, 2002 will be used to describe information with regard to the proposed Felsic rock / aggregate mining project.

The research and analysis with regard to the project will be processed and interpreted to compile the information required in the abovementioned template to be distributed for public comment.

#### **viii. Description of the tasks that will be undertaken during the environmental impact assessment process**

The EIA process for the proposed aggregate mining project on the remaining extent of the farm Bloemhof 14, Magisterial District Parys, Free State Province, is depicted below:

1. Application for Mining Right and Environmental Authorisation to DMR;
2. DMR responds with reference number;
3. Announcement of EIA and MR application to I&APs and stakeholders;
4. Draft Scoping Report for perusal by I&AP's and stakeholders;
5. Final Scoping Report (FSR) submitted to DMR;
6. DMR decision on FSR;
7. Impact Assessment Process;
8. Project description and site environmental baseline;
9. Impact assessment;
10. Mitigation measures and recommendations ;
11. EMPr compilation;
12. Cumulative impacts assessment;
13. Draft EIA report for perusal by I&AP's and stakeholders;
14. Final EIA report submitted to DMR;
15. DMR decision on Final EIA report;
16. Announcement of Environmental Authorisation and Appeal Procedure;
17. Opportunity to Appeal; and
18. Issuing of Mining Right.

**ix. Measures to avoid, reverse, mitigate, or manage identified impacts and to determine the extent of the residual risk that need to be managed and monitored**

| NAME OF ACTIVITY  | POTENTIAL IMPACT  | MITIGATION TYPE  | POTENTIAL FOR RESIDUAL RISK |
|---|---|--|-----------------------------|
| whether listed or not listed  | (Including the potential impacts for cumulative impacts)  | (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc...etc..) | if mitigated                |
| (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc... etc. Etc.) | (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc...etc..) | E.g. Modify through alternative method. Control through noise control. Control through management and monitoring. Remedy through rehabilitation.   |                             |
| Demarcation Of Site With Visible Beacons.   | No impact could be identified other than the beacons being outside the boundaries of the approved processing area.                            | N/A  | Low                         |
| Establishment of Temporary Buildings and Infrastructure Within Boundaries of Site.  | If the infrastructure is established within the boundaries of the approved mining area, no impact could be identified.                        | N/A  | N/A                         |
|   | Portable Toilets Potential harm through sewage leaks  | Control through proper site management   | Med                         |
|   | Deterioration in visual aesthetics of the area  | <u>Control:</u> Implementation of proper housekeeping  | Low-Med                     |
|   | Dust nuisance caused by the disturbance of soil.  | <u>Control:</u> Dust suppression   | Low                         |
|   | Emissions caused by vehicles and equipment  | <u>Control:</u> Emissions  | Low                         |
|   | Noise nuisance caused by machinery stripping and stockpiling the topsoil.   | <u>Control:</u> Noise control measures   | Low                         |
|   | Loss of biodiversity. Potential damage to vegetation in neighbouring areas. Alien invasive encroachment                                       | <u>Control &amp; Remedy:</u> Implementation of weed control and weed/invaser plant management plan Management of buffer areas and demarcation of work areas.<br><br><u>Modify:</u>                                       | Low-Med                     |

| NAME OF ACTIVITY   | POTENTIAL IMPACT  | MITIGATION TYPE   | POTENTIAL FOR RESIDUAL RISK |
|--|---|---|-----------------------------|
|  |   | Consider use of a less sensitive area   |                             |
| Establishment of Temporary Buildings and Infrastructure Within Boundaries of Site. | Potential compaction of soils in neighbouring areas. Potential contamination through littering. Potential for loss of soil & damage to soil characteristics. Initial increased potential for loss of soils and soil erosion. Potential hydrocarbon contamination to soils.  | <b>Control:</b><br>Storm water management<br>Site Management<br>Soil Management   | Low –<br>Medium             |
|  | Contamination of area with hydrocarbons or hazardous waste materials  | <b>Control:</b><br>Waste management   | Low-Med                     |
|  | Alteration of topography  | <b>Control:</b><br>Surface water Monitoring   | Medium-High                 |
|  | Loss of and disturbance to surface archaeological sites   | <b>Control:</b><br>Survey area before site clearance  | Low-Med                     |
|  | Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table  | <b>Control:</b><br>Proper site management.  | Low                         |
|  | Potential silt-loading of drainage lines, downstream and surrounding water bodies. Potential hydrocarbon contamination which may reach downstream surface water bodies. Potential surface water contamination if leaks escape into the environment. Potential impact of mining activities on the runoff and infiltration of storm water.        | <b>Control:</b><br>Surface water Management<br>Implement storm water control measures. Measures will be implemented as subscribed by DWS. | Low                         |
|  | Alienation of animals from the area. Potential risk to avifauna. Potential harm through littering. Loss of food, nest sites and refugia Hindrance to nocturnal animals and change in behaviour of nocturnal prey and predators. New habitat available to fauna in the area and reduced activity should result in influx of animals to the area. | <b>Control:</b><br>Implementation of fauna protection measures  | Low-Med                     |

| NAME OF ACTIVITY                     | POTENTIAL IMPACT   | MITIGATION TYPE  | POTENTIAL FOR RESIDUAL RISK |
|--------------------------------------|--|--|-----------------------------|
|                                      | Impact to nocturnal insects and their predators and other nocturnal animals.   |  |                             |
|                                      | Veldt fire might seriously impact on surrounding land-use (livestock/irrigation of neighbouring farmers).<br>Degrading of grazing potential for livestock farming  | <u>Control:</u><br><u>Fire</u>   | Low-Med                     |
|                                      | Influx of unsuccessful job seekers which may informally settle in area. Potential danger to surrounding communities  | Control through proper site management   | Low-Med                     |
| Stripping and Stockpiling of Topsoil | Deterioration in visual aesthetics of the area   | <u>Control:</u><br>Implementation of proper housekeeping   | Low-Med                     |
|                                      | Dust nuisance caused by the disturbance of soil.   | <u>Control:</u><br>Dust suppression  | Low                         |
|                                      | Emissions caused by vehicles and equipment   | <u>Control:</u><br>Emissions   | Low                         |
|                                      | Noise nuisance caused by machinery stripping and stockpiling the topsoil.  | <u>Control:</u><br>Noise control measures  | Low                         |
|                                      | Loss of biodiversity. Potential damage to vegetation in neighbouring areas. Alien invasive encroachment  | <b><u>Control &amp; Remedy:</u></b><br>Implementation of weed control and weed/invaser plant management plan<br>Management of buffer areas and demarcation of work areas.<br><br><u>Modify:</u><br>Consider use of a less sensitive area | Low-Med                     |
|                                      | Potential compaction of soils in neighbouring areas. Potential contamination through littering. Potential for loss of soil & damage to soil characteristics. Initial increased potential for loss of soils and soil erosion. Potential hydrocarbon contamination to soils. | <b><u>Control:</u></b><br>Storm water management<br>Site Management<br>Soil Management   | Low –<br>Medium             |
|                                      | Contamination of area with hydrocarbons or hazardous waste materials   | <u>Control:</u><br>Waste management  | Low-Med                     |

| NAME OF ACTIVITY                     | POTENTIAL IMPACT   | MITIGATION TYPE  | POTENTIAL FOR RESIDUAL RISK |
|--------------------------------------|--|--|-----------------------------|
|                                      | Alteration of topography   | <u>Control:</u><br>Surface water Monitoring  | Low-Med                     |
|                                      | Loss of and disturbance to surface archaeological sites  | <u>Control:</u><br>Survey area before site clearance   | Low-Med                     |
|                                      | Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table   | <u>Control:</u><br>Proper site management.   | Low                         |
|                                      | Potential silt-loading of drainage lines, downstream and surrounding water bodies. Potential hydrocarbon contamination which may reach downstream surface water bodies. Potential surface water contamination if leaks escape into the environment. Potential impact of mining activities on the runoff and infiltration of storm water.   | <u>Control:</u><br>Surface water Management Implement storm water control measures. Measures will be implemented as subscribed by DWS. | Low                         |
| Stripping and Stockpiling of Topsoil | Alienation of animals from the area. Potential risk to avifauna. Potential harm through littering. Loss of food, nest sites and refugia Hindrance to nocturnal animals and change in behaviour of nocturnal prey and predators. New habitat available to fauna in the area and reduced activity should result in influx of animals to the area. Impact to nocturnal insects and their predators and other nocturnal animals. | <u>Control:</u><br>Implementation of fauna protection measures   | Low-Med                     |
|                                      | Veldt fire might seriously impact on surrounding land-use (livestock/irrigation of neighbouring farmers). Degrading of grazing potential for livestock farming   | <u>Control:</u><br><u>Fire</u>   | Low-Med                     |
|                                      | Disturbance of geological strata   | N/A  | Medium - High               |
| Drilling and Blasting                | Deterioration in visual aesthetics of the area   | <u>Control:</u><br>Implementation of proper housekeeping   | Low-Med                     |
|                                      | Dust nuisance due to excavation activities   | <u>Control:</u><br>Dust Suppression  | Low                         |
|                                      | Noise nuisance generated by drilling equipment and blasting  | <u>Control:</u><br>Noise Control Measures  | Low                         |

| NAME OF ACTIVITY             | POTENTIAL IMPACT  | MITIGATION TYPE   | POTENTIAL FOR RESIDUAL RISK |
|------------------------------|---|---|-----------------------------|
|                              | <p>Potential silt-loading of drainage lines, downstream and surrounding water bodies.</p> <p>Potential hydrocarbon contamination which may reach downstream surface water bodies.</p> <p>Potential surface water contamination if leaks escape into the environment.</p> <p>Potential impact of mining activities on the runoff and infiltration of storm water.</p>  | <p><u>Control:</u><br/>Surface water Management<br/>Implement storm water control measures. Measures will be implemented as subscribed by DWS.</p>                          | <p>Low</p>                  |
|                              | <p>Potential hydrocarbon contamination leeching into the water table.</p> <p>Reduction of local groundwater.</p> <p>Potential contamination through littering leeching into the groundwater table</p>   | <p><u>Control:</u><br/>Proper site management.</p>  | <p>Low</p>                  |
|                              | <p>Potential compaction of soils in neighbouring areas.</p> <p>Potential contamination through littering.</p> <p>Potential for loss of soil &amp; damage to soil characteristics.</p> <p>Initial increased potential for loss of soils and soil erosion.</p> <p>Potential hydrocarbon contamination to soils.</p>   | <p><u>Control:</u><br/>Storm water management<br/>Site Management<br/>Soil Management</p>   | <p>Low-Med</p>              |
| <p>Drilling and Blasting</p> | <p>Health and Safety Risk by Blasting Activities.</p> <p>Potential danger to surrounding communities</p>  | <p><u>Control:</u><br/>Implementation of safety control measures</p>  | <p>Low</p>                  |
|                              | <p>Alienation of animals from the area.</p> <p>Potential risk to avifauna.</p> <p>Potential harm through littering.</p> <p>Loss of food, nest sites and refugia</p> <p>Hindrance to nocturnal animals and change in behaviour of nocturnal prey and predators.</p> <p>New habitat available to fauna in the area and reduced activity should result in influx of animals to the area.</p> <p>Impact to nocturnal insects and their predators and other nocturnal animals.</p> | <p><u>Control:</u><br/>Implementation of fauna protection measures</p>  | <p>Low</p>                  |
|                              | <p>Loss of biodiversity.</p> <p>Potential damage to vegetation in neighbouring areas.</p> <p>Alien invasive encroachment</p>  | <p><u>Control &amp; Remedy:</u><br/>Implementation of weed control and weed/invaser plant management plan<br/>Management of buffer areas and demarcation of work areas.</p> | <p>Low-Med</p>              |



| NAME OF ACTIVITY                                     | POTENTIAL IMPACT  | MITIGATION TYPE  | POTENTIAL FOR RESIDUAL RISK |
|--|---|--|-----------------------------|
|  |   | Modify:<br>Consider use of a less sensitive area   |                             |
| Drilling and Blasting                                | Alteration of topography  | <u>Control:</u><br>Surface water Monitoring  | Low-Med                     |
|  | Disturbance of geological strata  | N/A  | Low-Med                     |
|  | Veldt fire might seriously impact on surrounding land-use (livestock/irrigation of neighbouring farmers).<br>Degrading of grazing potential for livestock farming   | <u>Control:</u><br><u>Fire</u>   | Low-Med                     |
|  | Contamination of area with hydrocarbons or hazardous waste materials  | <u>Control:</u><br>Waste management  | Low-Med                     |
|  | Loss of and disturbance to surface archaeological sites   | <u>Control:</u><br>Survey area before site clearance   | Low-Med                     |
| Excavation and Loading of Aggregates to Be Processed | Deterioration in visual aesthetics of the area  | <u>Control:</u><br>Implementation of proper housekeeping   | Low-Med                     |
|  | Dust nuisance due to excavation activities  | <u>Control:</u><br>Dust Suppression  | Low                         |
|  | Emissions caused by vehicles and equipment  | <u>Control:</u><br>Dust suppression  | Low – Medium                |
|  | Noise nuisance generated by excavation equipment  | <u>Control:</u><br>Noise Control Measures  | Low                         |
|  | Potential silt-loading of drainage lines, downstream and surrounding water bodies.<br>Potential hydrocarbon contamination which may reach downstream surface water bodies.<br>Potential surface water contamination if leaks escape into the environment.<br>Potential impact of mining activities on the runoff and infiltration of storm water. | <u>Control:</u><br>Surface water Management<br>Implement storm water control measures.<br>Measures will be implemented as subscribed by DWS. | Low                         |
|  | Potential compaction of soils in neighbouring areas.<br>Potential contamination through littering.<br>Potential for loss of soil & damage to soil characteristics.<br>Initial increased potential for loss of soils and soil erosion.<br>Potential hydrocarbon contamination to soils.  | <u>Control:</u><br>Storm water management<br>Site Management<br>Soil Management  | Low-Med                     |
|  | Potential hydrocarbon contamination leeching into the water table.<br>Reduction of local groundwater.<br>Potential contamination through  | <u>Control:</u><br>Proper site management.   | Low                         |

| NAME OF ACTIVITY                                     | POTENTIAL IMPACT   | MITIGATION TYPE  | POTENTIAL FOR RESIDUAL RISK |
|--|--|--|-----------------------------|
|  | littering leeching into the groundwater table  |  |                             |
| Excavation and Loading of Aggregates to Be Processed | Unsafe working conditions for employees  | <u>Control:</u><br>Implementation of safety control measures   | Low-Med                     |
|  | Alienation of animals from the area. Potential risk to avifauna. Potential harm through littering. Loss of food, nest sites and refugia Hindrance to nocturnal animals and change in behaviour of nocturnal prey and predators. New habitat available to fauna in the area and reduced activity should result in influx of animals to the area. Impact to nocturnal insects and their predators and other nocturnal animals. | <u>Control:</u><br>Implementation of fauna protection measures   | Low                         |
|  | Loss of biodiversity. Potential damage to vegetation in neighbouring areas. Alien invasive encroachment  | <b><u>Control &amp; Remedy:</u></b><br>Implementation of weed control and weed/invaser plant management plan<br>Management of buffer areas and demarcation of work areas.<br><br><u>Modify:</u><br>Consider use of a less sensitive area | Low-Med                     |
|  | Alteration of topography   | <u>Control:</u><br>Surface water Monitoring  | Low-Med                     |
|  | Contamination of area with hydrocarbons or hazardous waste materials   | <u>Control:</u><br>Waste management  | Low-Med                     |
|  | Loss of and disturbance to surface archaeological sites  | <b><u>Control:</u></b><br>Survey area before site clearance  | Low                         |
|  | Veldt fire might seriously impact on surrounding land-use (livestock/irrigation of neighbouring farmers). Degrading of grazing potential for livestock farming   | <b><u>Control:</u></b><br><u>Fire</u>  | Low-Med                     |
|  | Disturbance of geological strata   | N/A  | Low                         |
| Crushing and Screening of Aggregates                 | Dust nuisance due to loading and transportation of the material  | <u>Control:</u><br>Dust suppression  | Low                         |
|  | Emissions caused by vehicles and equipment   | <u>Control:</u><br>Emissions   | Low – Medium                |
|  | Noise nuisance caused by crushing plant.   | <u>Control:</u><br>Noise Control Measures  | Low-Med                     |

| NAME OF ACTIVITY  | POTENTIAL IMPACT  | MITIGATION TYPE  | POTENTIAL FOR RESIDUAL RISK |
|---|---|--|-----------------------------|
| Crushing and Screening of Aggregates                                      | <p>Alienation of animals from the area. Potential risk to avifauna. Potential harm through littering. Loss of food, nest sites and refugia Hindrance to nocturnal animals and change in behaviour of nocturnal prey and predators. New habitat available to fauna in the area and reduced activity should result in influx of animals to the area. Impact to nocturnal insects and their predators and other nocturnal animals.</p> | <p><u>Control:</u><br/>Implementation of fauna protection measures</p>   | Low-Med                     |
|   | <p>Deterioration in visual aesthetics of the area</p>   | <p><u>Control:</u><br/>Implementation of proper housekeeping</p>   | Low-Med                     |
|   | <p>Potential compaction of soils in neighbouring areas. Potential contamination through littering. Potential for loss of soil &amp; damage to soil characteristics. Initial increased potential for loss of soils and soil erosion. Potential hydrocarbon contamination to soils.</p>   | <p><u>Control:</u><br/>Storm water management<br/>Site Management<br/>Soil Management</p>  | Low-Med                     |
|   | <p>Potential silt-loading of drainage lines, downstream and surrounding water bodies. Potential hydrocarbon contamination which may reach downstream surface water bodies. Potential surface water contamination if leaks escape into the environment. Potential impact of mining activities on the runoff and infiltration of storm water.</p>   | <p><u>Control:</u><br/>Surface water Management<br/>Implement storm water control measures. Measures will be implemented as subscribed by DWS.</p> | Low                         |
|   | <p>Potential hydrocarbon contamination leaching into the water table. Reduction of local groundwater. Potential contamination through littering leaching into the groundwater table</p>   | <p><u>Control:</u><br/>Proper site management.</p>   | Low                         |
| Stockpiling and Transportation of Material from Stockpile Area To Clients | <p>Dust nuisance due to loading and transportation of the material</p>  | <p><u>Control:</u><br/>Dust suppression</p>  | Low                         |
|   | <p>Emissions caused by vehicles and equipment</p>   | <p><u>Control:</u><br/>Dust suppression</p>  | Low                         |
|   | <p>Road degradation. Increased potential for road incidences Potential distraction to road users</p>  | <p><u>Control &amp; Remedy:</u><br/>Road management</p>  | Low                         |
|   | <p>Noise nuisance caused by vehicles</p>  | <p><u>Control:</u><br/>Noise control measures</p>  | Low                         |

| NAME OF ACTIVITY  | POTENTIAL IMPACT  | MITIGATION TYPE  | POTENTIAL FOR RESIDUAL RISK |
|---|---|--|-----------------------------|
| <p>Stockpiling and Transportation of Material from Stockpile Area to Clients</p>                  | <p>Potential compaction of soils in neighbouring areas. Potential contamination through littering. Potential for loss of soil &amp; damage to soil characteristics. Initial increased potential for loss of soils and soil erosion. Potential hydrocarbon contamination to soils.</p>   | <p><b>Control:</b><br/>Storm water management<br/>Site Management<br/>Soil Management</p>  | <p>Low-Med</p>              |
|   | <p>Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table</p>   | <p><b>Control:</b><br/>Proper site management.</p>   | <p>Low</p>                  |
|   | <p>Potential silt-loading of drainage lines, downstream and surrounding water bodies. Potential hydrocarbon contamination which may reach downstream surface water bodies. Potential surface water contamination if leaks escape into the environment. Potential impact of mining activities on the runoff and infiltration of storm water.</p>               | <p><b>Control:</b><br/>Surface water Management<br/>Implement storm water control measures. Measures will be implemented as subscribed by DWS.</p> | <p>Low</p>                  |
|   | <p>Deterioration in visual aesthetics of the area</p>   | <p><b>Control:</b><br/>Implementation of proper housekeeping</p>   | <p>Low-Med</p>              |
|   | <p>Contamination of area with hydrocarbons or hazardous waste materials</p>   | <p><b>Control:</b><br/>Waste management</p>  | <p>Low</p>                  |
| <p>Sloping, Landscaping and Replacement of Topsoil Over Disturbed Area (Final Rehabilitation)</p> | <p> <ul style="list-style-type: none"> <li>▶ Potential compaction of soils in neighbouring areas.</li> <li>▶ Potential contamination through littering.</li> </ul> <p>Potential for loss of soil &amp; damage to soil characteristics. Initial increased potential for loss of soils and soil erosion. Potential hydrocarbon contamination to soils.</p> </p> | <p><b>Control:</b><br/>Storm water management<br/>Site Management<br/>Soil Management</p>  | <p>Low-Med</p>              |
|   | <p>Soils replaced and ameliorated</p>   | <p><b>Control:</b><br/>Storm water management<br/>Site Management<br/>Soil Management</p>  | <p>Low-Med</p>              |
|   | <p>Dust nuisance caused during landscaping activities</p>   | <p><b>Control:</b><br/>Dust Suppression</p>  | <p>Low</p>                  |
|   | <p>Emissions caused by vehicles and equipment</p>   | <p><b>Control:</b><br/>Emissions</p>   | <p>Low</p>                  |

| NAME OF ACTIVITY   | POTENTIAL IMPACT  | MITIGATION TYPE  | POTENTIAL FOR RESIDUAL RISK |
|--|---|--|-----------------------------|
| Sloping, Landscaping and Replacement of Topsoil Over Disturbed Area (Final Rehabilitation) | Noise nuisance caused by machinery  | <u>Control:</u><br>Noise Management  | Low-Med                     |
|  | <ul style="list-style-type: none"> <li>▣ Potential hydrocarbon contamination leeching into the water table.</li> <li>▣ Reduction of local groundwater.</li> <li>▣ Potential contamination through littering leeching into the groundwater table</li> </ul>  | <u>Control:</u><br>Proper site management.   | Low                         |
|  | Contamination of area with hydrocarbons or hazardous waste materials  | <u>Control:</u><br>Waste management  | Low                         |
|  | <ul style="list-style-type: none"> <li>▣ Loss of biodiversity.</li> <li>▣ Potential damage to vegetation in neighbouring areas.</li> <li>▣ Alien invasive encroachment</li> </ul>   | <u>Control &amp; Remedy:</u><br>Implementation of weed control and weed/invasiver plant management plan<br>Management of buffer areas and demarcation of work areas.<br><br>Modify:<br>Consider use of a less sensitive area | Low-Med                     |
|  | Improve response to issues relating to deterioration of groundwater quality or quantity   | <u>Control:</u><br>Proper site management.   | Low-Med                     |
|  | <ul style="list-style-type: none"> <li>▣ Potential silt-loading of drainage lines, downstream and surrounding water bodies.</li> <li>▣ Potential hydrocarbon contamination which may reach downstream surface water bodies.</li> <li>▣ Potential surface water contamination if leaks escape into the environment.</li> <li>▣ Potential impact of mining activities on the runoff and infiltration of storm water.</li> </ul> | <u>Control:</u><br>Surface water Management<br>Implement storm water control measures. Measures will be implemented as subscribed by DWS.  | Low                         |
|  | <ul style="list-style-type: none"> <li>▣ Containment of dirty water.</li> <li>▣ Improve response to issues relating to deterioration of surface water quality or quantity.</li> <li>▣ free drainage resorted to area.</li> <li>▣ Revegetation of disturbed areas reduces risk of silt loading on downstream water bodies.</li> <li>▣ Large area of surface water runoff return to catchment</li> </ul>                        | <u>Control:</u><br>Surface water Management<br>Implement storm water control measures. Measures will be implemented as subscribed by DWS.  | Low                         |
|  | Health and safety risk posed by un-sloped areas   | <u>Control:</u><br>Sloping of areas upon decommission  | Low                         |

| NAME OF ACTIVITY   | POTENTIAL IMPACT  | MITIGATION TYPE  | POTENTIAL FOR RESIDUAL RISK |
|--|---|--|-----------------------------|
| Sloping, Landscaping and Replacement of Topsoil Over Disturbed Area (Final Rehabilitation) | Reintroduction of fauna attracted to flora to the area  | <u>Control:</u><br>Implementation of fauna protection measures | Low                         |
|  | Alteration of topography  | <u>Control:</u><br>Surface water Monitoring                    | Low-Med                     |
|  | <ul style="list-style-type: none"> <li>■ Eradication of trenches and berms.</li> <li>■ Re-contouring of area for free surface water drainage.</li> <li>■ Eradication of stockpiles</li> </ul> | <u>Control:</u><br>Surface water Monitoring                    | Low-Med                     |
|  | Improved aesthetics through rehabilitation  | <u>Control:</u><br>Implementation of proper housekeeping       | Low-Med                     |
|  | Veldt fire might seriously impact on surrounding land-use (livestock/irrigation of neighbouring farmers). Degrading of grazing potential for livestock farming                                | <u>Control:</u><br>Fire  | Low-Med                     |

The supporting impact assessment conducted by the EAP will be attached as part of the EIA/EMP phase.

**i) Other Information required by the competent Authority**

- i. Compliance with the provisions of sections 24(4)(a) and (b) read with section 24 (3) (a) and (7) of the National Environmental Management Act (Act 107 of 1998). the EIA report must include the: -**

**(1) Impact on the socio-economic conditions of any directly affected person.**

(Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any directly affected person including the landowner, lawful occupier, or, where applicable, potential beneficiaries of any land restitution claim, attach the investigation report as **Appendix 2.19.1** and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6.and 2.12. herein).

The following potential impacts were identified that may impact on socio-economic conditions of directly affected persons:

**Visual exposure:**

The mining area was identified to constitute the lowest possible visual impact on the surrounding environment. The surrounding areas have previously been disturbed by mining activities, and this application entails the extension of the existing mining areas. 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.

This impact could be managed through the implementation of mitigation measures and needs to be fully investigated during the environmental impact assessment process. The findings of the investigation will be included in the Draft EIA report.

**Air Quality:**

The background air quality of the surrounding area is relatively good due to low industrial activity. Factors contributing to air pollution are the burning of veld and agriculture in the area. Given the surrounding extent of mostly covered areas, no extreme dust generation under windy conditions is experienced.

Dust will be generated by the proposed operation through blasting (limited to one blast) and the movement of machinery and vehicles. Dust suppression measures should be implemented to prevent excessive dust on site. Due to the remote setting of the proposed mining area the potential impact of dust nuisance on the surrounding environment is deemed to be of low significance.

**Noise:**

The surrounding areas are characterised by an agricultural setting in which vehicles and farm equipment operate. The traffic on the N1 and other public roads surrounding the property contributes to the ambient noise of the area. The noise to be generated at the proposed site (site alternative 1) operation is expected to temporarily increase the noise levels of the area. Blasting noise will be instantaneous and of short duration. Loading and transportation of the material will generate noise daily. The significance of noise on the surrounding environment is therefore deemed to be of low significance.



Mitigation measures should be implemented to ensure employees conduct them in an acceptable manner while on site in order to lessen the noise impact of the proposed activity on the surrounding environment.

### **Existing Infrastructure:**

It is expected that the proposed processing activity will have a very low impact on the surrounding environment as activities will be contained within the boundaries of the site. The proposed (Site alternative 1) footprint area will not require the building of any permanent structures. The proposed production of aggregate on the property will also reduce the amount of trucks delivering aggregate, from outside sources. This will have a direct positive impact on the traffic volumes of the surrounding roads and price of the aggregate.

### **(1) Impact on any national estate referred to in section 3(2) of the National**

**Heritage Resources Act.** (Provide the results of investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No 25 of 1999) with the exception of the national estate contemplated in section 3(2)(i)(vi) and (vii) of the Act, attach the investigation report as Appendix 2.19.2 and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6 and 2.12 herein).

No sites of archaeological or cultural importance were identified at the proposed mining area during the site inspection. The area was previously used for grazing agriculture and mining and no areas of cultural importance could be identified within the footprint area of the site.

### **m) Other matters required in terms of section 24(4)(a) and (b) of the Act.**

(the EAP managing the application must provide the competent authority with detailed, written proof of an investigation as required by section 24(4)(b)(i) of the Act and motivation if no reasonable or feasible alternatives, as contemplated in sub-regulation 22(2)(h), exist. The EAP must attach such motivation as Appendix 4)

The site and project alternatives investigated during the impact assessment process were done at the hand of information obtained during the site investigation, public participation process as well as desktop studies conducted of the study area. As discussed earlier the following alternatives were considered:

1. Site Alternative 1 – The proposed mining area over a 25.4 ha footprint area (Preferred Alternative).
2. Site Alternative 2 – The proposed mining area over a 25.4 ha footprint area.
3. No-go Alternative

**j) Undertaking Regarding Correctness of Information**

I, Yolandie Coetzee, herewith undertake that the information provided in the foregoing report is correct, and that the comments and inputs from stakeholders and Interested and Affected parties has been correctly recorded in the report.



**Signature of the EAP**

**DATE: 13/06/2018**

**k) Undertaking Regarding Level of Agreement**

I, Yolandie Coetzee, herewith undertake that the information provided in the foregoing report is correct, and that the level of agreement with interested and Affected Parties and stakeholders has been correctly recorded and reported herein.



**Signature of the EAP**

**DATE: 13/06/2018**

**-END-**