mineral resources & energy
Department:
Mineral Resources and Energy
REPUBLIC OF SOUTH AFRICA

Driefontein Quarry

DRAFT

BASIC ASSESSMENT REPORT

&

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

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

NAME OF APPLICANT:	**Afrimat Aggregates Operations (Pty) Ltd**
TEL NO:	**021 917 8840**
FAX NO:	**021 914 1174**
POSTAL ADDRESS:	**PO Box 768, Bellville, 6850**
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FILE REFERENCE NUMBER SAMRAD: WC 30/5/31/2/2/134 MR

February 2023

Driefontein/Draft BAR/Rev 1/

IMPORTANT NOTICE

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

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

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

It is therefore an instruction that the prescribed reports required in respect of applications for an environmental authorisation for listed activities triggered by an application for a right or 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.

Objective of the basic assessment process

The objective of the basic assessment process is to, through a consultative process–

(a) determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;

(b) identify the alternatives considered, including the activity, location, and technology alternatives;

(c) describe the need and desirability of the proposed alternatives,

(d) through the undertaking of an impact and risk assessment process inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage , and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on the these aspects to determine:

  (i) the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and

  (ii) the degree to which these impacts—

    (aa) can be reversed;

    (bb) may cause irreplaceable loss of resources; and

    (cc) can be managed, avoided or mitigated;

(e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to—

  (i) identify and motivate a preferred site, activity and technology alternative;

  (ii) identify suitable measures to manage, avoid or mitigate identified impacts; and

  (iii) identify residual risks that need to be managed and monitored.

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PART A

SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

1 Contact Person and correspondence address

1.1 Details of the EAP (Internal Afrimat)

Name of the Practitioner : Siphumelelo Mbali assisted by Asavela Siqangwe
Company : Afrimat Shared Services (Pty) Ltd
Tel No. : 021 917 8840
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1.2 Details of the EAP (independent Reviewer)

Name : Victor Manavhela
Company : Biogeotech Environmental Consultance
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Cnr Oosthuizen and Leiphodt
Germiston
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Expertise of the EAP

The qualifications of the EAP
(with evidence).

Refer Appendix 1.

Summary of the EAP's past experience.
(In carrying out the Environmental Impact Assessment Procedure)

Refer Appendix 1.

2 Location of the overall activity

Farm Name:	Farm 396 (Previously known as Farm Zand Fontein No. 185 Ptn 12)
Application area (Ha)	11.6759 Ha in addition to approved 39.7892Ha total 51.4651 Ha
Magisterial district:	Bredasdorp
Distance and direction from nearest town:	3 km south of Bredasdorp Town

21-digit Surveyor General Code for each farm portion:	C01100000000039600000
Locality map	Attach a locality map at a scale not smaller than 1:250000 and attach as see Figure 1 Locality Plan in Appendix 2
Description of the overall activity. (Indicate Mining Right, Mining Permit, Prospecting right, Bulk Sampling, Production Right, Exploration Right, Reconnaisance permit, Technical co-operation permit, Additional listed activity)	This Section 102 application is made to extend an already existing Mining Right Area which currently has a total area of 39.7892 ha by an additional 11.6759Ha to total 51.4651 Ha. This is an overburden stripping, drill and blast, haul, crush operation. Aggregate from this mine is sold to Bredasdorp and nearby areas. This extension intends to expand the excavation area only. All activities in terms of ROM will still be the same as current operation. It is anticipated that the selling price will be between R 150.00 and R 200.00 per ton and expected sales volumes will be between 5000 to 8000 tons per month.

3 Locality map

(show nearest town, scale not smaller than 1:250000).

Refer Figure 1 overleaf.

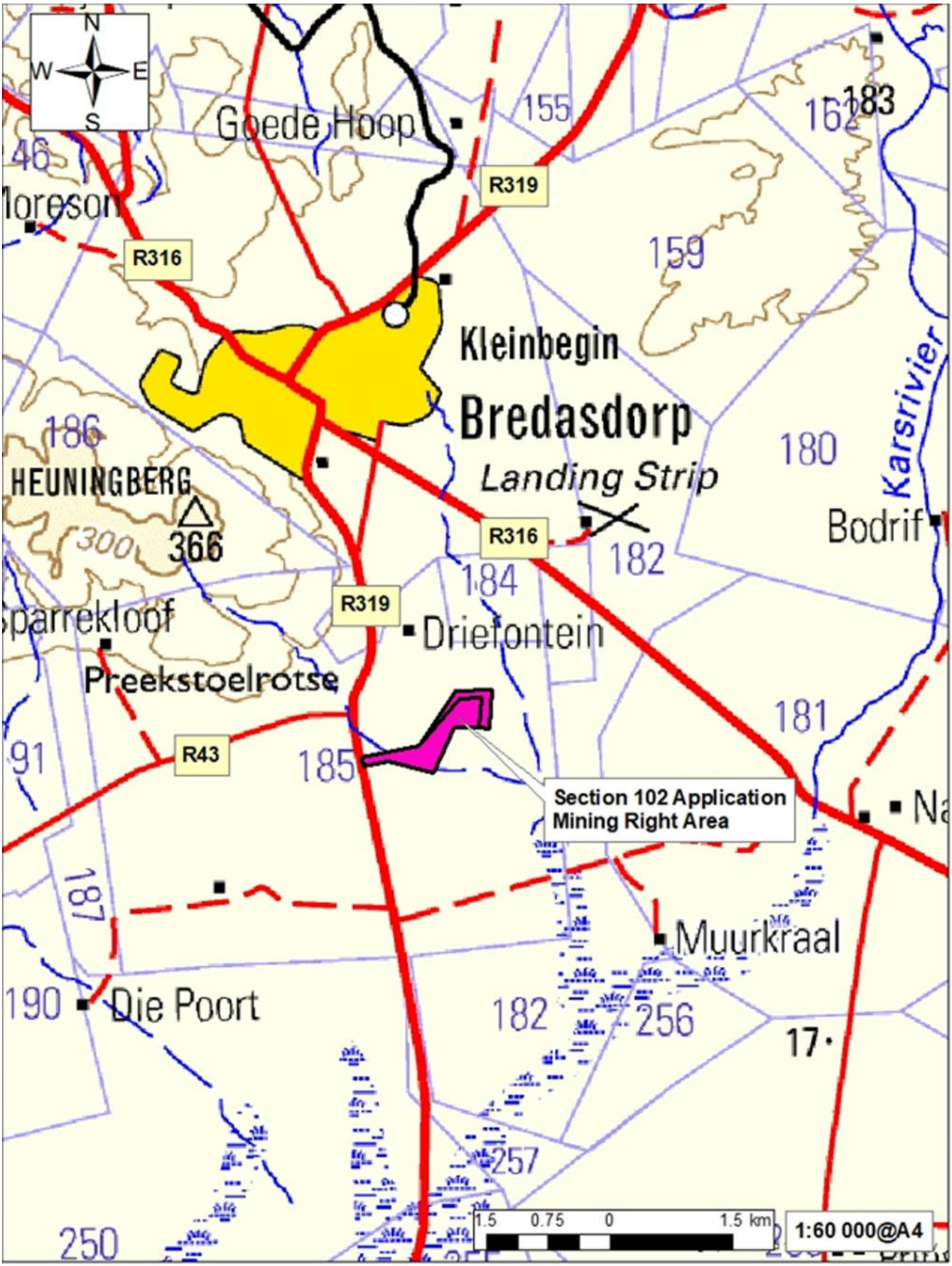
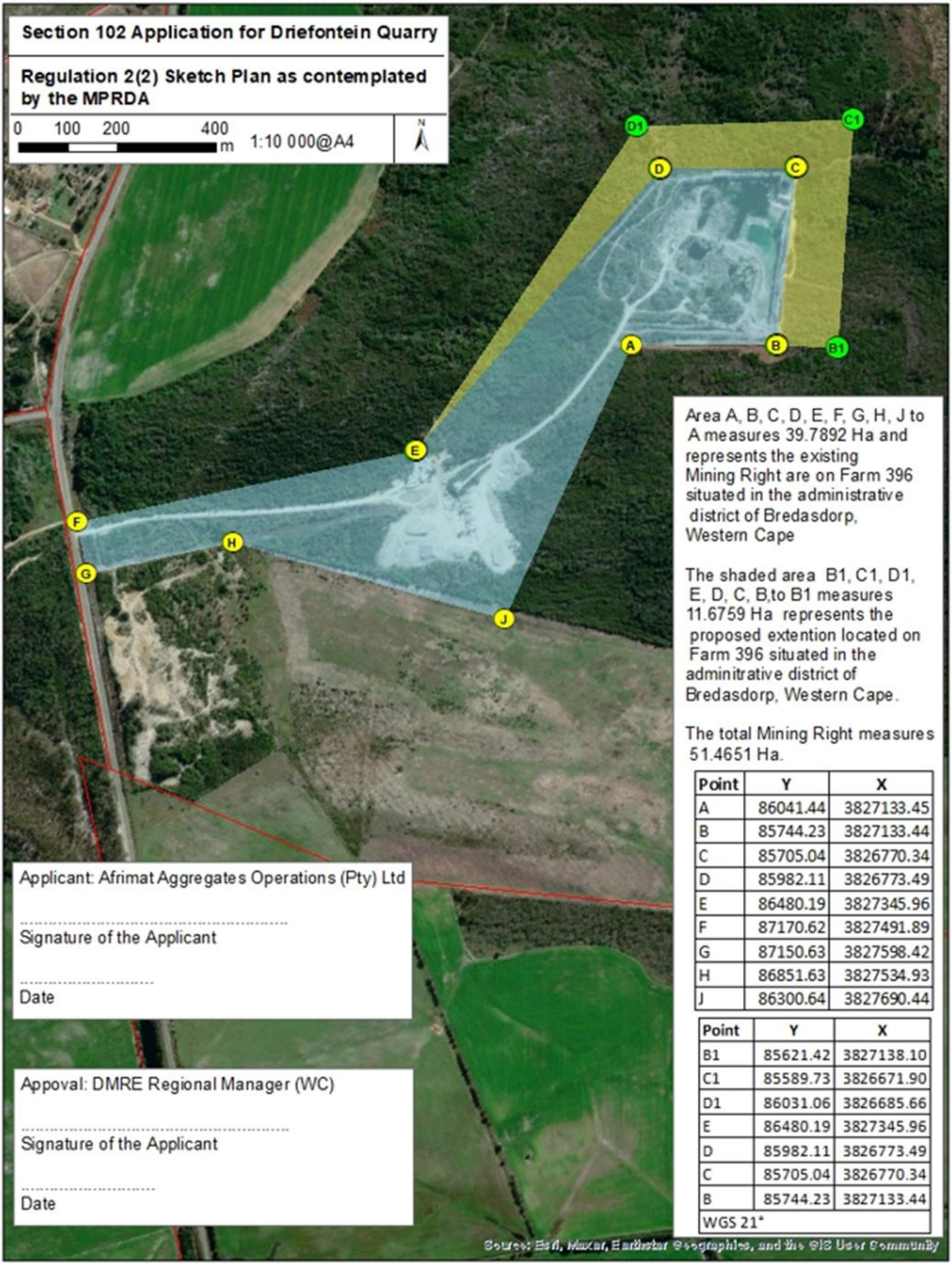


Figure 1: Locality Plan



Point	Y	X
A	86041.44	3827133.45
B	85744.23	3827133.44
C	85705.04	3826770.34
D	85982.11	3826773.49
E	86480.19	3827345.96
F	87170.62	3827491.89
G	87150.63	3827598.42
H	86851.63	3827534.93
J	86300.64	3827690.44

Point	Y	X
B1	85621.42	3827138.10
C1	85589.73	3826671.90
D1	86031.06	3826685.66
E	86480.19	3827345.96
D	85982.11	3826773.49
C	85705.04	3826770.34
B	85744.23	3827133.44
WGS 21°		

Figure 2: Regulation 2 (2) drawing

4 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 the aforesaid main and listed activities, and infrastructure to be placed on site

In order to determine listed activities, cognisance must be taken of location of national parks and formally protected areas, CBA's, Endangered Vegetation Types.

This Section 102 Mining Right extension area is in an aquatic CBA area and has Agulhas Sand Fynbos and Agulhas Limestone Fynbos vegetation types. The site is not located in a formally protected area. However, the Heuningberg Local Nature Reserve is located 1.5km to the north-west of the site. Thus, impact assessment on CBA impact may be critical but it must be noted that the area identified for the Section 102 is in an alien plant heavily infested area.

Please note the following:

a) The list of activities listed in table below include activities that are already approved as per existing EMP of the site and are included herewith to ensure a holistic approach of the mining operation. Thus, already approved activities do not need approval from DMRE.
b) New activities relevant in the 2022 application extension area are included for approval by DMRE.
c) The structure of this table is to ensure that should this 2022 application be approved, then such approved EIA-EMP document can be used as a complete Run of Mine document for monitoring and compliance.

4.1 Listed and specified activities

NAME OF ACTIVITY (E.g. **For prospecting -** drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route **etc…etc…etc** **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.)	**Aerial extent of the Activity Ha or m²**	**LISTED ACTIVITY** (Mark with an **X** where applicable or affected).	**APPLICABLE LISTING NOTICE** **(*GNR 327, GNR 325 or GNR 324)***	**WASTE MANAGEMENT AUTHORISATION** (Indicate whether an authorisation is required in terms of the Waste Management Act). **(Mark with an X)**
1. Pre-establishment phase				
1.1. Application for amendment of the Mining Right area under Section 102 of the MPRDA	51.46 51 ha	x	GNR 325: Activity #17	
2. Establishment				
2.1. Demarcate new Mining Right area boundary as defined in the Regulation 2 (2) sketch plan				
2.2. Conduct Environmental Induction training to staff				
2.3. Continue use of chemical toilets in the ski-cabins	12m^2			
2.4. Continue using the already existing ready-mix plant				
2.5. Continue use of logistical facilities i.e stores, personnel amnesties, office, dispatch office etc				
2.6. Continue using the already in place diesel tank	<30 0 00l			
2.7. Continue using the already approved haul road and access roads			GNR 327: Activity #27	

			GNR 985: Activity #4	
3. Operational phase	**Some of these activities are already approved in the current EMP. They are just listed here to ensure the table is complete and can be used to understand the whole mining process.**			
3.1. Remove alien trees on the extension area for excavation extension area	11.6759 ha			
3.2. Remove any remnant indigenous vegetation and topsoil 300-500mm to topsoil berms as prescribed by the Mine Plan and EMP	±9 ha of the 11.6759 Ha application area	x	GNR 324: Activity #12 GNR 325: Activity #15	
3.3. Drilling and blasting				
3.4. Loading and hauling shot rock to crusher using haul road out of existing excavation.				
3.5. Crushing and screening	±1 ha	X	GRN 325: Activity 21	
3.6. Stockpiling at current approved stockpile areas	±4 ha			
3.7. Dispatch loading of delivery vehicles.				
3.8. Conduct dust suppression on haul roads, stockpile area and plant				
4. Decommissioning phase including closure				
4.1. Removed all logistical facilities and chemical toilet				
4.2. Finalise sloping of final pit edges				
4.3. Rip/scarify hardened/compacted surface of plant and stockpiling area.	±11ha			
4.4. Spread topsoil from berms over ripped area (not excavation)				
4.5. Construct safety berm and trench around excavation perimeter and install livestock proof fence and danger signpost.				
4.6. Grass seed re-top soiled areas.				
4.7. Either retain or remove delivery road (to landowner's decision) by scarification, top soiling and grass seeding (retain bell-mouth)				
4.8. Conduct final Environmental Audit Report (EAR) for closure				
4.9. Apply for closure (submit closure application)				
5. Aftercare and maintenance activities (2 years)				
5.1. Monitor revegetation success and continue hand seeding when necessary annually.				

4.2 Description of the activities to be undertaken

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

This quarry currently has an outdated EMP which is still written Afrikaans. Consequently, while this is part of Section 102 application extension of Mining Right area, this application also serves as an update of the current EMP to be in-line with current relevant laws. However, the reader is reminded that the law is not retrospective and thus update of the EMP cannot be used to apply current laws on aspects that were approved in previous EMP.

4.3 Background to site selection

Afrimat Aggregates (Operations) (Pty) Ltd (hereafter referred to as Afrimat) has been operating this Driefontein Quarry since the early 1990s as Prima Klipbrekers. This quarry supplies the Bredasdorp and surrounds area with competent aggregate material for building and civil engineering projects. Consequently, Afrimat has an established market share in the region.

In late 2021, the mine management determined that mine reserves are becoming limited within the approved Mining Right area. Furthermore, with preliminary construction industry news that Bredasdorp will be receiving considerable attention in the foreseeable future, it has become clear to mine management that extension of this mine would be beneficial for such projects. Consequently, this Section 102 application is now lodged.

The extension area is chosen based on the experience of the mine management with the geology of the area and the current exposed overburden on the existing Mine faces.

4.4 Current on-site infrastructure

Basically, the current existing Mining Right operation has the following approved infrastructure:

1) Ski-Cabin offices, Ski-Cabin Toilets, one changing-room and personnel amenities brick building
2) Fuel diesel bund
3) Weighbridge
4) Security kiosk wendy house
5) Ready-mix plant
6) Crushing Plant
7) Stockpile area
8) Current Excavation
9) Haul road from the pit
10) Access road

All the above-mentioned infrastructure will not be amended in this application and any new reserves obtained will be produced at the same production rate as current levels.

Please refer Photos 1 to 6 below to see current status of the site.

Photo 1: Showing proposed site with alien vegetation

Photo 2: Existing access road to the site

Photo 3: Showing existing infrastructure on site

Photo 4: Entrance road to the site and R319 road to Struuisbaai

Photo 5: On the Sothern side, showing alien vegetation.

Photo 6: Looking North East, it is the status of the current excavated area (in green)

4.5 Geology

The geology of the property consists of consistent Quarzitic Sandstone of the Table Mountain group. The Quarzitic sandstone is fractured and has depth of a few hundred meters below the overburden which is 2-3.5m on the extension area in the north and east (Refer Figure 3 overleaf). The area of Mining Right Area extension is an area that has the mineral exposed and estimated overburden depth based on the exposed faces of the existing quarry faces.

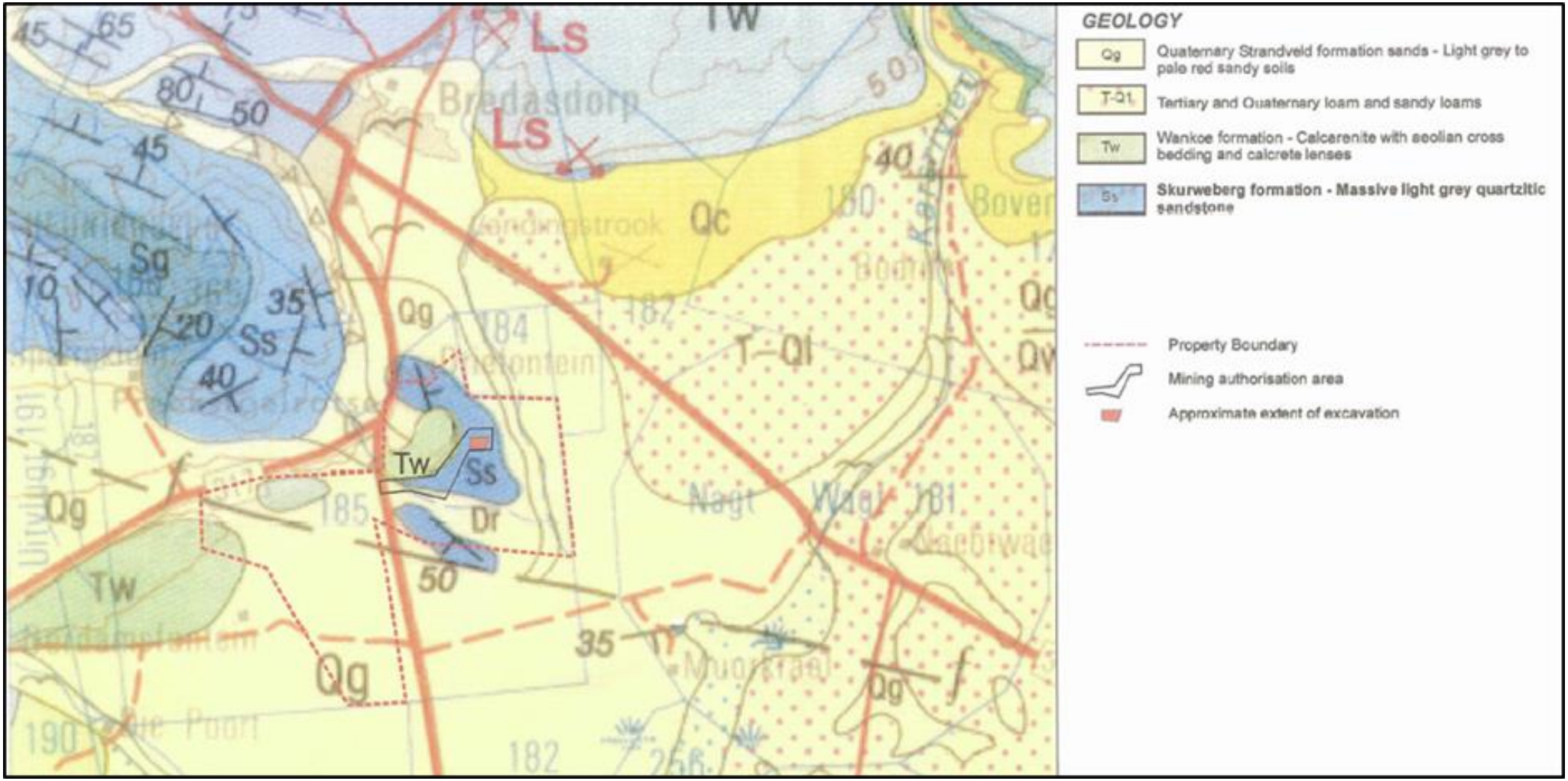


Figure 3: Geology Plan

4.6 Reserves

As measured from the area of the extension area, the following reserves are estimated:

±11	Ha	MR extension area	
100000	m²	Area	
2.6	m	Average depth	
260000	**m³**	**Volume**	**Overburden to be moved**
80000	m²	Mineable area @80%	
8	m	Mining Depth	
640000	m³	Volume	
1728000	**tons**	**Volume in tons**	
48000	tons	annual sold	
36	**yrs.**	**lifespan**	**Competent rock**

4.7 Mining Method and proposed site layout

The mine is a low volume production operation catering for needs of a largely rural community and its associated building industry. Hard rock is mined using conventional drilling and blasting method. The loosened material is loaded to haul trucks by excavators and transported to the primary crusher. The material is then processed at the crushing plant to produce aggregate that is stockpiled until it is sold to clients.

For this Section 102 application, the mining method will be the same as currently being undertaken on the mine site as follows:

- Removal of topsoil to topsoil perimeter berms,
- Drilling and blasting,
- Hauling of blasted rock to primary crusher,
- Crushing and screening,
- Stockpiling at stockpile areas, and
- Loading and dispatch of trucks to clients.

The current mine is mined to a depth of ±12m below after overburden removal. The future mining is anticipated to continue to similar depth. In term of Mine Plan Layout, Figure 4 shows the proposed mine plan. The excavation will be expanded by drilling and blasting ±20m wide benches until the excavation reaches the perimeter topsoil berms.

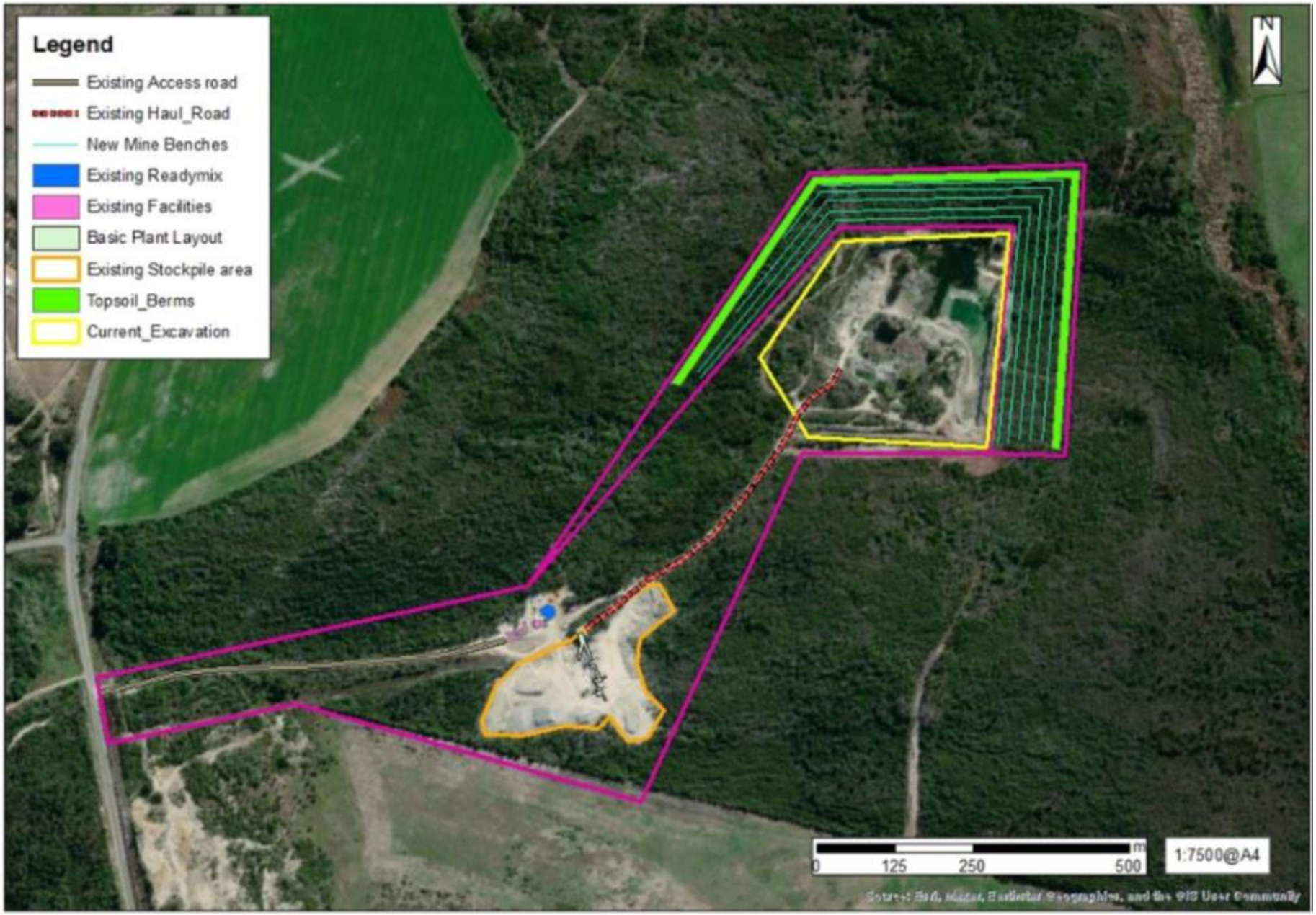


Figure 4: Mine Layout and Mine Plan

5 Policy and Legislative Context

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (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	REFERENCE WHERE APPLIED (i.e. Where in this document has it been explained how the development complies with and responds to the legislation and policy context)	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE POLICY AND LEGISLATIVE CONTEXT (E.g. In terms of the National Water Act: - Water Use License has/has not been applied for).
National Environmental Management Act	Entire document including public participation	Environmental Authorization from DMR as competent authority
Mineral and Petroleum Resources Development Act	Template for Scoping Report	DMR application and process
National Heritage Resources Act	Relevant sections	Heritage (NID) will be lodged with HWC
Municipality's SDF	Need and Desirability (Para 6.1)	End Use informant
National Water Act	Possible trigger of WULA	Water Use Licence will be initiated when needed.
EIA Guideline and Information Document Series' "Guideline on Need and Desirability	Need and Desirability (Para 9)	Guideline for information utilized in this document
EIA Guideline 5 Assessing alternatives and impacts	Cumulative Impact Assessment (Para 6.1.1)	Guideline for information utilized in this document
NEMWA	Not applicable	No application for Waste Licence
Land Use Planning Act, 2014 Western Cape Land Use Planning Act, 2014	Land Use Change	A renewal of Land Use change application will be applied for.
Western Cape Noise Control Regulations (Provincial Notice 200/2013) of 20 June 2013	Noise Control	Noise management and mitigation
National Dust Control Regulations (Government Notice No. R. 827 of 1/11/2013)	Dust Control	Dust management and mitigation

6 Need and desirability AND Cumulative Impact 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).

6.1 Need and Desirability Analysis

The EIA Guideline and Information Document Series' "Guideline on Need and Desirability" dated 2017 has been used to consider this aspect.

Important: The need and desirability should not only focus on the actual mining phase of this site's short (2)

The first port of call in considering need and desirability is a determination of how the proposed project fits in with the Spatial Development Framework (SDF). The following is noted:

1. The site is located in the Cape Agulhas Municipality. The latest Cape Agulhas Municipality (dd July 2017-2022) shows the entire area is identified as Mining (brown). Therefore, the end use of the Mining Right area will ensure that quarry is rehabilitated so as to allow further development of the site by the landowner.
2. Other land uses identified close to the application area is land preserved for cultivation (light mustard). There are no major sensitive environmental aspects are mapped near the site. It is to be noted that the area is densely populated with alien vegetation.

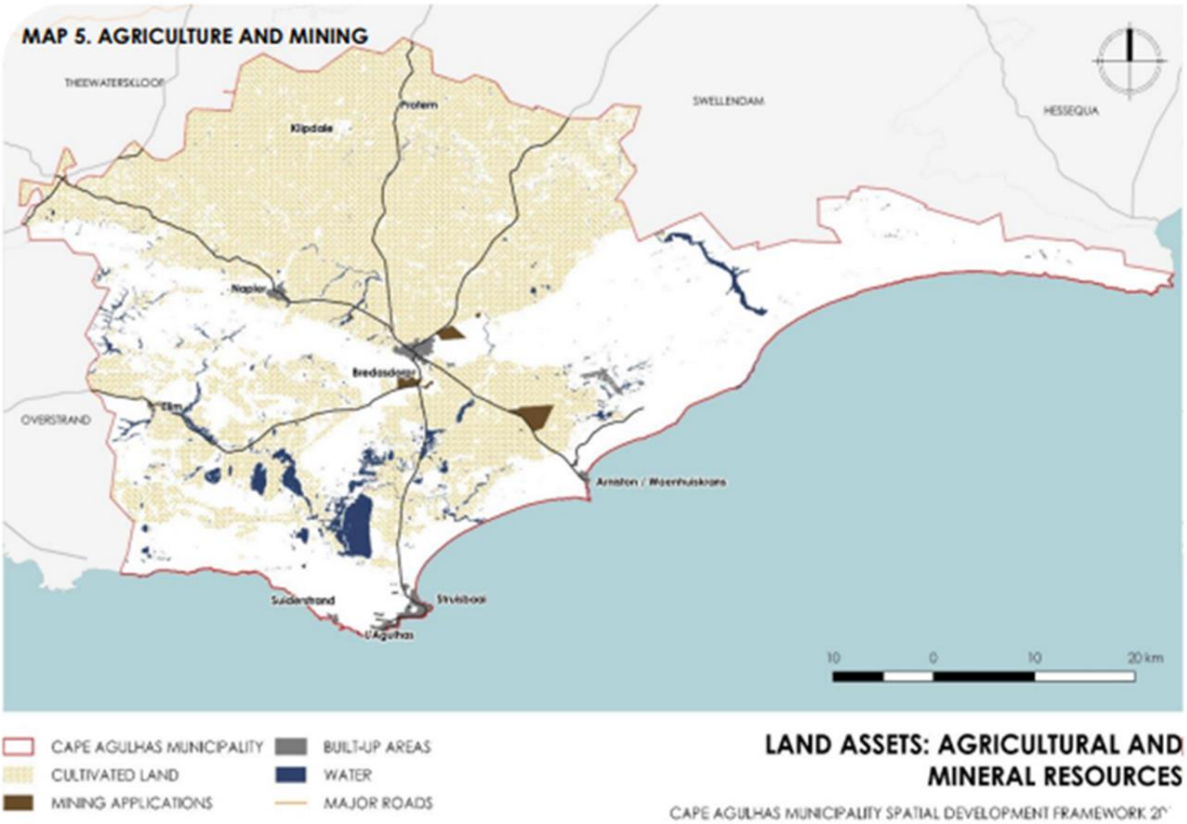


Figure 5: Cape Agulhas Spatial Development Framework 2017-2022

The following tables are from the published 2017 Guideline on Need and Desirability

6.1.1 Securing ecological sustainable development and use of natural resources

1.	**How will this development (and its separate elements/aspects) impact on the ecological integrity of the area?**	
1.1.	How were the following ecological integrity considerations taken into account:	
1.1.1.	Threatened Ecosystems	The Section 102 application area is in a terrestrial environment. The type of vegetation which predominates here is the Aghulus Sand Fynbos and Aghulus Limestone Fynbos. The application area is an existing mining right area.
1.1.2.	Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure	
1.1.3.	Critical Biodiversity Areas ("CBAs") and Ecological Support Areas ("ESAs"),	
1.1.4.	Conservation targets.	Not relevant in this area as this is a fully operational site needing additional 11.6759 ha.
1.1.5.	Ecological drivers of the ecosystem.	According to Cape Farm Mapper, the site located in a partly CBA area (refer figure 9).
1.1.6.	Environmental Management Framework	The EMP has an objective of limiting additional impacts beyond current disturbances to an absolute minimum.
1.1.7.	Spatial Development Framework, and	The SDF has classified the site as a quarry.
1.1.8.	Global and international responsibilities relating to the environment (e.g. RAMSAR sites, Climate Change, etc.).	Not applicable at this small site
1.2.	How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity? What measures were explored to firstly avoid these negative impacts, and where these negative impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts	As the site is highly infested, the level of environmental impact will be low.

1.3.	How will this development pollute and/or degrade the biophysical environment? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	The main risk of pollution to the site and surrounds is through hydrocarbon pollution. All mitigation and monitoring efforts aimed at minimising or preventing any negative impacts are contained in Chapters 34 to 37 respectively.
1.4.	What waste will be generated by this development? What measures were explored to firstly avoid waste, and where waste could not be avoided altogether, what measures were explored to minimise, reuse and/or recycle the waste? What measures have been explored to safely treat and/or dispose of unavoidable waste?	Domestic, Hazardous and Industrial waste will be the main waste stream on site and all mitigations on how to handle it are explained in detail on chapter para 32.5.
1.5.	How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	No landscape aspect will be significantly adversely affected as this area is in a relatively flat area. In terms of Heritage, the excavation is limited to the 11.6579 ha extension area in addition to an already excavated area and a simple chance find procedure for any possible fossils or artefacts will form part of staff induction training.

1.6.	How will this development use and/or impact on non-renewable natural resources? What measures were explored to ensure responsible and equitable use of the resources? How have the consequences of the depletion of the non-renewable natural resources been considered? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	The application is use of a non-renewable resource. In terms of equitable use of the resource, the applicant has met all the legal requirements of the mining charter and in respect of responsible use of the resource, the application is subject to all Mineral and Environmental legislation and the public participation associated therewith. The application is subject to comment and input from several commenting authorities as well aspects of environment determined by public input and / or legislation. The consequences of depletion of non-renewable resource has been considered in the post mining land use by facilitating further use of the site in future.
1.7.	How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part? Will the use of the resources and/or impact on the ecosystem jeopardise the integrity of the resource and/or system taking into account carrying capacity restrictions, limits of acceptable change, and thresholds? What measures were explored to firstly avoid the use of resources, or if avoidance is not possible, to minimise the use of resources? What measures were taken to ensure responsible and equitable use of the resources? What measures were explored to enhance positive impacts?	Not applicable.

1.7.1.	Does the proposed development exacerbate the increased dependency on increased use of resources to maintain economic growth or does it reduce resource dependency (i.e. de-materialised growth)? (note: sustainability requires that settlements reduce their ecological footprint by using less material and energy demands and reduce the amount of waste they generate, without compromising their quest to improve their quality of life)	This mining operation does not lower the dependency on use of resources to maintain economic growth. This extension application will be positive for continual economic viability of the quarry.
1.7.2.	Does the proposed use of natural resources constitute the best use thereof? Is the use justifiable when considering intra- and intergenerational equity, and are there more important priorities for which the resources should be used (i.e. what are the opportunity costs of using these resources against a proposed development alternative?)	This site is fully operational and has proven to be a suitable resource best used for the purpose to which the material is suited, namely aggregates, high-quality concrete and road stone.
1.7.3.	Do the proposed location, type and scale of development promote a reduced dependency on resources	No.
1.8.	How were a risk-averse and cautious approach applied in terms of ecological impacts	The site is an existing quarry except for the additional 11.6579 hectares applied for which is highly infested by alien vegetation. Therefore, no adverse impacts are at present noted at this point.
1.8.1.	What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?	None known.
1.8.2.	What is the level of risk associated with the limits of current knowledge?	Limited knowledge has been simplified by appointing a vegetation specialist.
1.8.3.	Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?	See line item 1.8.2 above.
1.9.	How will the ecological impacts result from this development impact on people's environmental right in terms following:	

1.9.1.	Negative impacts: e.g. access to resources, opportunity costs, loss of amenity (e.g. open space), air and water quality impacts, nuisance (noise, odour, etc.), health impacts, visual impacts, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?	The negative impacts have been identified in part 14 of this document. Measures taken to avoid impacts are contained in Part 32 (as well as monitoring as contained in Part 37). Proposed measures taken to minimise, manage and remedy negative impacts are contained in Part 32 and 35.
1.9.2.	Positive impacts: e.g. improved access to resources, improved amenity, improved air or water quality, etc. What measures were taken to enhance positive impacts?	Proposed measures taken to enhance positive impacts are contained in Part 32 and 35.
1.10.	Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socioeconomic impacts (e.g. on livelihoods, loss of heritage site, opportunity costs, etc.)?	This site is highly infested by alien vegetation as such the 11.6759 hectares which will be cleared for development will assist in preventing fires which may take place in this area. Ongoing monitoring of this vegetation will take place.
1.11.	Based on all of the above, how will this development positively or negatively impact on ecological integrity objectives/ targets/ considerations of the area?	The impact of proposed mining will be insignificant if all management measures are undertaken.
1.12.	Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the "best practicable environmental option" in terms of ecological considerations?	It is unlikely that mining of any resource would result in the "best practicable environmental option" in terms of ecological considerations but it must be remembered that there are other considerations in respect of the socio-economic and built environment which also have a bearing.
1.13.	Describe the positive and negative cumulative ecological/biophysical impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and existing and other planned developments in the area?	Cumulative impact has been described as insignificant on all aspects of the ecology (as described in para 6.2).

6.1.2 Promoting justifiable economic and social development

2.	**Promoting justifiable economic and social development**	
2.1.	What is the socio-economic context of the area, based on, amongst other considerations, the following considerations?:	Refer also para 27.1
2.1.1.	The IDP (and its sector plans' vision, objectives, strategies, indicators and targets) and any other strategic plans, frameworks of policies applicable to the area,	The IDP targets economic growth such as mining in this municipality is considered a minimal contributor in the economic sector in the municipality as this mining is operating on a relatively small scale.
2.1.2.	Spatial priorities and desired spatial patterns (e.g. need for integrated of segregated communities, need to upgrade informal settlements, need for densification, etc.),	Not applicable
2.1.3.	Spatial characteristics (e.g. existing land uses, planned land uses, cultural landscapes, etc.), and	The site is identified as a quarry in the SDF plan and this application does not change such designation.
2.1.4.	Municipal Economic Development Strategy ("LED Strategy").	The Municipality, along with many others suffers from low employment rates and virtually any economic development has the potential for large multiplier effects.
2.2.	Considering the socio-economic context, what will the socio-economic impacts be of the development (and its separate elements/aspects), and specifically also on the socio-economic objectives of the area?	Refer Para 27.1
2.2.1.	Will the development complement the local socio-economic initiatives (such as local economic development (LED) initiatives), or skills development programs?	Yes, the development of this operation will complement the local socio-economic initiatives as the applicant company is bounded by prescriptions of the Social and Labour Plan to contribute to the community's skills development and must also implement a Local Economic Development project which meets the satisfaction of the DMRE and local authority.
2.3.	How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities	Through engaging with the community, finding a suitable LED project which meets the community's needs and a project which will benefit the community as a whole.

2.4.	Will the development result in equitable (intra- and inter-generational) impact distribution, in the short- and long-term? Will the impact be socially and economically sustainable in the short- and long-term?	Yes.
2.5.	In terms of location, describe how the placement of the proposed development will:	
2.5.1.	result in the creation of residential and employment opportunities in close proximity to or integrated with each other	The site is located 3km South of Bredasdorp therefore residents nearby are likely to be employed.
2.5.2.	reduce the need for transport of people and goods	As the site is close to Bredasdorp Town, transport for employees will not be a problem.
2.5.3.	result in access to public transport or enable non-motorised and pedestrian transport (e.g. will the development result in densification and the achievement of thresholds in terms public transport),	Not applicable
2.5.4.	compliment other uses in the area,	This quarry has been part Bredasdorp for the last 30 years.
2.5.5.	be in line with the planning for the area,	The site has been designated as a quarry, thus this application confirms such designation.
2.5.6.	for urban related development, make use of underutilised land available with the urban edge,	Not applicable
2.5.7.	optimise the use of existing resources and infrastructure	The plant infrastructure is already existing therefore all material blasted in this area will be crushed in the existing plant area.
2.5.8.	opportunity costs in terms of bulk infrastructure expansions in non-priority areas (e.g. not aligned with the bulk infrastructure planning for the settlement that reflects the spatial reconstruction priorities of the settlement),	Not applicable
2.5.9.	discourage "urban sprawl" and contribute to compaction/densification,	Not applicable
2.5.10.	contribute to the correction of the historically distorted spatial patterns of settlements and to the optimum use of existing infrastructure in excess of current needs,	Not applicable
2.5.11.	encourage environmentally sustainable land development practices and processes	This is mining and although mining per se cannot encourage such sustainable land development practices and processes, it can be conducted in such a way as to minimise the impact on the environment.
2.5.12.	take into account special locational factors that might favour the specific location (e.g. the location of a strategic mineral resource, access to the port, access to rail, etc.),	Not applicable.

2.5.13.	the investment in the settlement or area in question will generate the highest socio-economic returns (i.e. an area with high economic potential),	No. This is a small-scale mining operation.
2.5.14.	impact on the sense of history, sense of place and heritage of the area and the socio-cultural and cultural-historic characteristics and sensitivities of the area, and	This section 102 application area is designated as a quarry which currently has a total area of 39.7892 which will be extended by an additional 11.6759 ha to total of 51.4651 ha. For the heritage impact, a NID has been lodge with HWC.
2.5.15.	in terms of the nature, scale and location of the development promote or act as a catalyst to create a more integrated settlement?	Not applicable.
2.6.	How were a risk-averse and cautious approach applied in terms of socio-economic impacts?	
2.6.1.	What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?	None Known. Small scale of activity makes it unlikely that there any gaps in knowledge in respect of socio-economic impacts. The EMP prescribed mitigation and management measures to limit environmental impact.
2.6.2.	What is the level of risk (note: related to inequality, social fabric, livelihoods, vulnerable communities, critical resources, economic vulnerability and sustainability) associated with the limits of current knowledge?	There is no risk to these socio-economic aspects through the proposed mining at the site.
2.6.3.	Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?	Not applicable.
2.7.	How will the socio-economic impacts resulting from this development impact on people's environmental right in terms following	
2.7.1.	Negative impacts: e.g. health (e.g. HIV-Aids), safety, social ills, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts	The negative impacts have been identified in part 14 of this document. Measures taken to avoid impacts are contained in Part 32 (as well as monitoring as contained in Part 37). Proposed measures taken to minimise, manage and remedy negative impacts are contained in Part 32 and 35.
2.7.2.	Positive impacts. What measures were taken to enhance positive impacts?	Proposed measures taken to enhance positive impacts are contained in Part 32 and 35.

2.8.	Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development's socio-economic impacts will result in ecological impacts (e.g. over utilisation of natural resources, etc.)?	Skills development through an LED project implementation, Rental income for the landowner and employment for the existing employees.
2.9.	What measures were taken to pursue the selection of the "best practicable environmental option" in terms of socio-economic considerations	All relevant stakeholders in this community will be consulted, this draft BAR/EMP will placed at local municipality and library. Therefore, any aspects that may not have been considered by the EAP will be raised by I&APs.
2.10.	What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons (who are the beneficiaries and is the development located appropriately)? Considering the need for social equity and justice, do the alternatives identified, allow the "best practicable environmental option" to be selected, or is there a need for other alternatives to be considered?	The applicant company meets the requirement for BEE shareholding and company management. The Environmental Management Program management prescriptions also aim to limit any adverse environmental impacts.
2.11.	What measures were taken to pursue equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing, and what special measures were taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination?	All legislation has been adhered to. This application does not infringe on any disadvantaged persons right.
2.12.	What measures were taken to ensure that the responsibility for the environmental health and safety consequences of the development has been addressed throughout the development's life cycle?	All mines are subject to Health and Safety legislation (Mine Health and Safety Act 29 of 1996). Such prescriptions are not within the ambit of this document but are strictly monitored by DMRE.
2.13.	What measures were taken to:	
2.13.1.	Ensure the participation of all interested and affected parties.	Refer Part 8 for full record of Public Participation
2.13.2.	Provide all people with an opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation.	Refer Part 8 for full record of Public Participation
2.13.3.	Ensure participation by vulnerable and disadvantaged persons.	The proposed activities were advertised in the local newspaper and advertised on posters at public areas (municipality and libraries etc).
2.13.4.	Promote community wellbeing and empowerment through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means.	None

2.13.5.	Ensure openness and transparency, and access to information in terms of the process.	Refer Part 8 for full record of Public Participation
2.13.6.	Ensure that the interests, needs and values of all interested and affected parties were taken into account, and that adequate recognition were given to all forms of knowledge, including traditional and ordinary knowledge, and,	Refer Part 8 for full record of Public Participation
2.13.7.	ensure that the vital role of women and youth in environmental management and development were recognised and their full participation therein were be promoted.	Refer Part 8 for full record of Public Participation
2.14.	Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community (e.g.. a mixture of low-, middle-, and high-income housing opportunities) that is consistent with the priority needs of the local area (or that is proportional to the needs of an area)?	Not applicable to this small-scale mining application
2.15.	What measures have been taken to ensure that current and/or future workers will be informed of work that potentially might be harmful to human health or the environment or of dangers associated with the work, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected?	All mines are subject to Health and Safety legislation (Mine Health and Safety Act 29 of 1996). Such prescriptions are not within the ambit of this document but are strictly monitored by DMRE.
2.16.	Describe how the development will impact on job creation in terms of, amongst other aspects:	
2.16.1.	the number of temporary versus permanent jobs that will be created,	Although this is an already existing mine, the life of the mine is 30 years. Roles will be filled by the existing staff members but the applicant may recruit casual and contract workers locally when needed.
2.16.2.	whether the labour in the area will be able to take up the job opportunities (i.e. do the required skills match the skills available in the area),	When necessary suitably skilled persons available will be recruited
2.16.3.	the distance from where labourers will have to travel,	Less than 5km
2.16.4.	the location of jobs opportunities versus the location of impacts (i.e. equitable distribution of costs and benefits), and	As this is an already existing operation which is considered to be in a small-scale operation, job opportunities will be limited.
2.16.5.	the opportunity costs in terms of job creation (e.g. a mine might create 100 jobs, but impact on 1000 agricultural jobs, etc.).	The proposed section 102 mining operation has existing employees as such there may be short - term or contractual employment and development of this operation will not take any jobs away in any other sector.

2.17.	What measures were taken to ensure:	
2.17.1.	that there were intergovernmental coordination and harmonisation of policies, legislation and actions relating to the environment, and	Refer Part 8 for full record of Public Participation which included all relevant State Departments at all levels of governance
2.17.2.	that actual or potential conflicts of interest between organs of state were resolved through conflict resolution procedures	Not applicable
2.18.	What measures were taken to ensure that the environment will be held in public trust for the people, that the beneficial use of environmental resources will serve the public interest, and that the environment will be protected as the people's common heritage?	Environmental impact has been assessed to be low with mitigation measures and specialist study in all aspects of the environment. The proposed project will be subject to extensive public participation to ensure all public are aware of and have input into the planning and approval process. The project aims to serve the construction industry.
2.19.	Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left?	The management of operational impact is the responsibility of the applicant with monitoring and auditing largely by independent parties. The Mineral legislation requires that Closure be granted before the applicant can relinquish responsibility for the site. Such closure process is arduous and requires enforced participation by and satisfaction of relevant State Departments.
2.20.	What measures were taken to ensure that the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects will be paid for by those responsible for harming the environment?	In terms of operational control of environmental impact and pollution, this EMP prescribes measures to be put in place to monitor and then mitigate / manage or avoid any known or unexpected impact. All Mining Right holders are responsible to annually update a calculation to determine the costs of Immediate Closure of the site. Such calculation is based on DMRE Guideline and the value of the fund must be provided to the DMRE either in form of cash or by bank Guarantee. Should the holder "disappear", then the fund is used by the State to rehabilitate the site.
2.21.	Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the best practicable environmental option in terms of socio-economic considerations?	The only feasible alternative applicable to this application is the no go option. As this project is in an area which is highly infested by alien vegetation and in an already existing operation, the option of no-go is not appropriate.

2.22.	Describe the positive and negative cumulative socio-economic impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and other planned developments in the area?	This cumulative impact of any employment in the area is a beneficial impact for an additional 30 years as indicated by possible reserves. There is also income to the landowner. The impact of this development has already occurred as this is an existing site. A detailed analysis of cumulative impact would most certainly show that there is minimal cumulative impact arising out of this application. Section 6.2 contains a limited cumulative impact assessment.

6.2 Cumulative Impact Assessment

The assessment of cumulative impacts on a site-specific basis is often a complex operation. The aim of this impact analysis is ultimately to determine at which point the combined impacts from several operations (similar or dissimilar) in the area will affect the environment or part thereof to such a negative degree that the project should not be allowed to proceed.

Mining is a place-bound operation which is determined purely by geology of the mineral. Consequently, alternative sites are rarely available to meet the demand quality.

The following is an amended procedure sourced from http://www.eiatoolkit.ewt.org.za/documents/DEAT/guidelines/ AT_EIA_Guideline5_Assessing_alternatives_and_impacts.doc

Types of cumulative impacts
Additive impact: Impacts of the same nature from different operations (e.g. dust from several mines in the area can cause excessive dust impacts)

Interactive impact: where a cumulative impact is the result of a combination of different impacts to cause a new kind of impact.

Methodology used in assessing cumulative impact/s

- Determine extent of cumulative impacts:
  - Identify potentially significant cumulative impacts associated with the proposed activity
  - Establish the geographic scope of the assessment
  - Establish the timeframe of the analysis
  - Identify other activities affecting the environmental resources of the area
- Describe the affected environment:
  - Characterize the resources identified above in terms of their response to change and ability to withstand stress
  - Define a baseline condition that provides a measuring point for the environmental resources that will be acted upon

- Assess the cumulative impacts:
  - Determine the magnitude or significance of cumulative impacts

- Recommend mitigation measures.

So, using the aforementioned procedure as headings, herewith an assessment of the cumulative impacts arising from this operation:

Determining the extent of the cumulative impacts:
Identification of potentially significant impacts:

Proposed operations of this type could conceivably result in the following cumulative impacts:

a) *Vegetation:* Vegetation in this application area is described as Agulhas Sand Fynbos and Agulhas Limestone Fynbos vegetation types (Mucina and Rutherford, 2012). However, as revealed by the site visit and Site Verification report, the application area is heavily infested by alien plants particularly Port Jackson. Based on the current status of the site, vegetation impact on indigenous vegetation is expected to be insignificant compared to current alien infestation.

b) *Noise:* Noise may cause impact on the farmstead that is about 700m northwest of the Mining Right extension area. Nonetheless, noise impact management measures will have to be enforced and maintained.

c) *Dust:* Dust may cause impact on the farmstead that is about 700m northwest of the Mining Right extension area. Nonetheless, dust impact management measures will have to be enforced and maintained.

d) *Blasting:* Blasting may impact farmstead that is about 700m northwest of the Mining Right extension area. However, to date no blasting impacts have been reported by the landowner and should correct blasting designs be maintained as is the case then impact should remain negligible.

e) *Socio-economic impacts:* This cumulative impact of any employment in the area is a beneficial impact for an additional 30 years as indicated by possible reserves. There is also income to the landowner.

Geographic Scope of assessment:
Please description above in a) to e).

Timeframe of analysis
The proposed project will take place over a period of approximately 30 years. The timeframe of the analysis would typically depend on the nature of the impact being assessed:

i. Life of mine impacts typically assessed are noise, dust and socio-economic impact.
ii. Longer term impact is in respect of the revegetation of mined out areas which will take years to restore to climax vegetation type if a post mining land use as wilderness area were to be adopted.

Other activities impacting on environmental resources in the area
No other significant activity is identified as causing impact on the surrounding areas.
Resource characterization
This section aims to characterise the environmental resources in terms of their ability to withstand additional stress.

Vegetation: Please see a) above.

Noise: Please see b) above.

Dust: Please see c) above.

Blasting: Please see d) above.

Magnitude and significance of cumulative impacts

Vegetation

Impact on vegetation is going to be low if search and rescue is undertaken prior to mining. Furthermore, this site is heavily infested by alien vegetation (mainly Port Jackson).

Noise: Impact will be low with mitigation measures.

Air Quality: Impact will be low with mitigation measures.

Blasting: As per current mining, blasting has not been noted as having any impact on surrounding areas.

Socio-economic: Moderate positive impact to landowner, employees and customers (through continued local supply).

7 Motivation for the overall preferred site, activities and technology alternative.

7.1 Overall Preferred Site Alternative (Motivation)

The site layout that has been proposed has been informed by the following factors:

1. The applicant has been mining in this area since early 1990s and thus knows the area.
2. The existing Mine and infrastructure is not going to be changed by the application extension area.

7.2 Activity Alternative (Motivation)

Excavation development is the core proposed activity. In terms of the construction company's business there can be no other alternative activity (mining and crushing method).

7.3 Technology Alternative selected (Motivation)

Hard rock mining with mobile crushing plant technology is well established and the use of excavators / dozers and front-end loaders will continue.

8 Full description of the process followed to reach the proposed preferred alternatives within the site.

NB!! – This section is about the determination of the specific site layout and the location of infrastructure and activities on site, having taken into consideration the issues raised by interested and affected parties, and the consideration of alternatives to the initially proposed site layout.

NOTE that this section is still subject to Public Input in respect of alternative consideration. This version of the document is a draft document.

8.1 Details of the development footprint 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:

8.1.1 The location where it is proposed to undertake the activity

There are several aspects which determine the locality of such a project. The most important is geology for the resource which dictates the location of this activity – without suitable rock quality, no mining can take place. The other factor is that with Afrimat having mined at the site since 1990S, Afrimat understands the mineral quality and has established a client base within this region.

8.1.2 The type of activity to be undertaken;

Mining by drilling and blasting with hauling to a proximate crushing and screening plant with already existing infrastructure.

8.1.3 The design or layout of the activity

The design and layout of the excavation in this case was governed by the material location, depth and quality and its exposure for immediate existing face advance and deepening of the existing and expanded floor.

8.1.4 The technology to be used in the activity

Standard hard rock quarrying technology in the drilling, blasting and crushing and screening will be applied.

8.1.5 The operational aspects of the activity

Access routes: The existing access road will be used. Otherwise, no change in current methods is considered necessary.

8.1.6 The option of not implementing the activity

The option of no-go project is not considered as necessary given the insignificant impact of the operation in this highly alien infested site (rehabilitation will take place in accordance with the prescriptions of this document).

8.2 Details of the Public Participation Process Followed

THIS DOCUMENT IS THE DRAFT BASIC ASSESSMENT REPORT AND WILL SERVE AS THE BASIS DOCUMENT FOR PUBLIC INPUT. As a result, the description which follows is the proposed public participation methodology.

Public participation will take place in the following manner:

1. **Consultation** with the landowner.
2. **Surrounding landowners:** These will be sent copies of this Draft Basic Assessment report by registered mail or Email depending on their preference to be determined. Should they request a meeting, then such consultation will take place.

3. **State Departments:** Registered mail or emails will be sent to the following State departments and NGOs:
    a. Department of Environment Affairs and Development Planning
    b. Cape Nature
    c. Department of Water and Sanitation
    d. Dept. of Agriculture Forestry and Fisheries
    e. Municipality – Manager's Office and Environmental Section
    f. Department of Transport: District / Provincial Roads Engineer
    g. Heritage Western Cape – Lodging of NID
    h. Land Claims Commissioner.

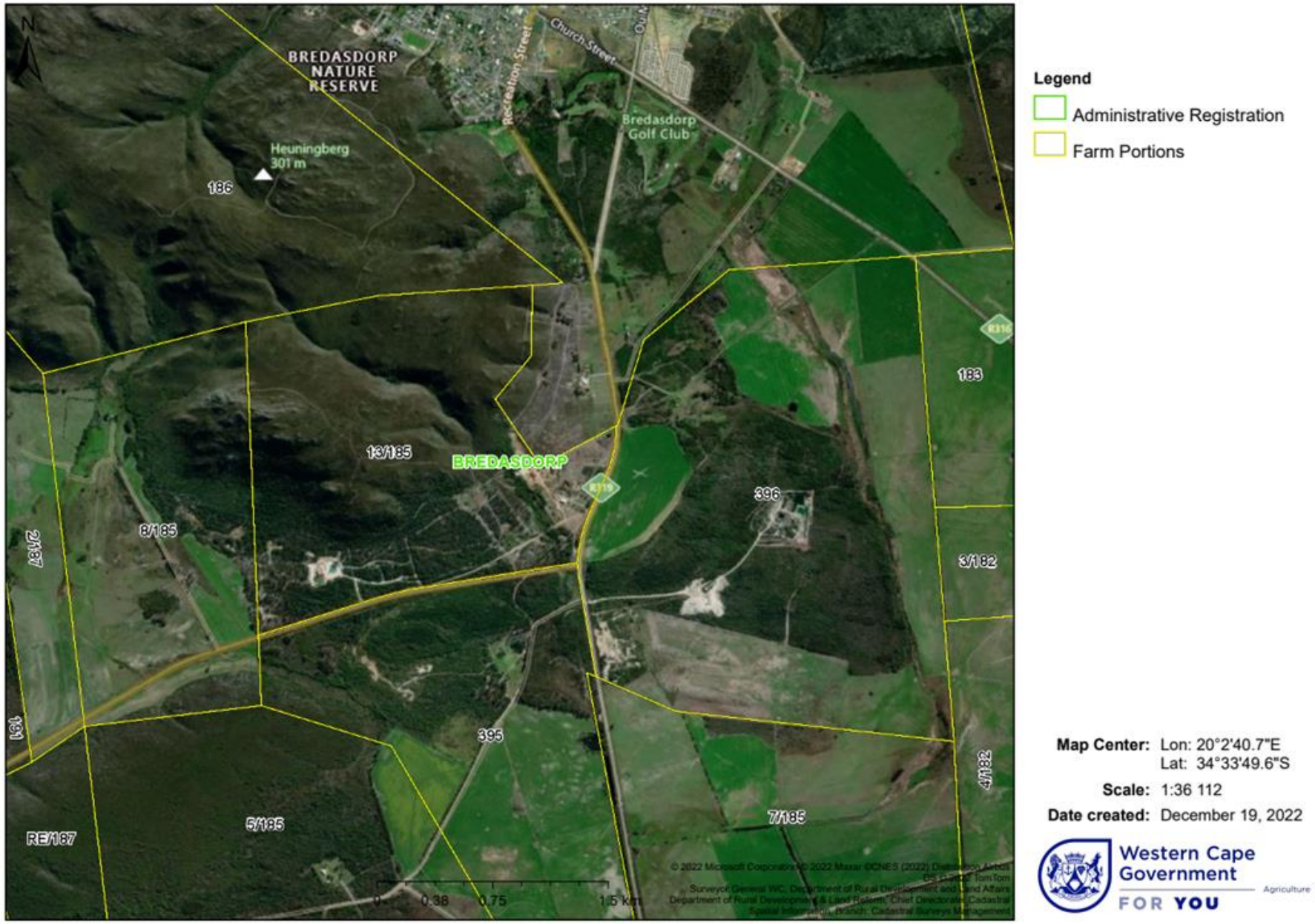


Figure 6:Surrounding Landowners (Source: Cape Farm Mapper)

8.3 Summary of issues raised by I&Aps

Will be updated after consent is obtained from relevant I&APs publish their personal information

Interested and Affected Parties: List the names of persons consulted in this column, and 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	Para in this report where the issues / responses were incorporated.
Farm name: Albertyn Familie Trust (Landowner) Farm no: 396					
Lawful occupier/s of the land					
Landowners or lawful occupiers on adjacent properties – Refer Figure 7 above					
Name: Albertyn Familie Trust Zandfontein, Farm no. 8/185 Farm owner: Sparrekloof Trust					
Farm no. 395 Farm Name:					
Farm owner: Tarantula Paradys (pty)Ltd Zandfontein farm no 13/185					
Farm Number: 182/3 Farm Name: Albertyn Family Trust					
Farm Number: 182/2 Farm Name: Cape Aghulus Municipality					

Interested and Affected Parties: List the names of persons consulted in this column, and 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	Para in this report where the issues / responses were incorporated.
Erf 1347: Municipality Address: 43 Ocean View Drive, Struisbaai, Struisbaai					
Organs of state (Responsible for infrastructure that may be affected Roads, Eskom, Telkom, DWA etc.)					
Ward 6 Cape Aghulus Municipality Councillor Janine August-Marthinus					
Western Cape Province District: Overberg Local Municipality: Cape Aghulus Municipal Manager: Mr Eben Phillips, e-mail: EbenP@capeagulhas.gov.za					
Local Economic Development and Tourism Name: Mr Oscar January e-mail: OscarJ@capeagulhas.gov.za					
Department of Mineral Resources Regional Manager Private Bag X9 Roggebaai 8012 Linda Njemla Email: linda.njemla@dmre.gov.za					

Interested and Affected Parties: List the names of persons consulted in this column, and 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	Para in this report where the issues / responses were incorporated.
Department of Environment Affairs and Development Planning: Dev. Management Head of Department Private Bag X9086 Cape Town, 8000 Att: Ms A La Meyer Tel: 021 483 2887 Email : adri.LaMeyer@westerncape.gov.za					
Breede-Gouritz Catchment Agency (BGCMA) Contact person: Z Mbunquka Email: zmbunquka@breedegouritcma.co.za Contact: 0233468000					
Dept. of Agriculture Forestry and Fisheries: Head of Department Private Bag X1 Elsenberg, 7607. Cor van der Walt Tel: 021 809 1606 Email: Landuse.elsenburg@elsenburg.com					

Interested and Affected Parties: List the names of persons consulted in this column, and 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	Para in this report where the issues / responses were incorporated.
Department of Forestry and Fisheries Mr Rob Leslie Private Bag x9087 Cape Town 8000 Email: robl@daff.gov.za					
Department Land Affairs Commission On Restitution Of Land Rights: Regional Land Claims Commission: X9163, Cape Town, 8000; Telephone: 021 409 0418 Maroeda.johnson@drdlr.gov.za					
Government: Department of Transport and Public Works Telephone: +27 21 483 4669 E-mail: Vanessa.Stoffels@westerncape.gov.za					
Community newspaper Mathabo le Roux Anneli Groenewald Contact: 028 424 1205 028 424 1216 Email: suidernuusads@isat.co.za					
Traditional Leaders - None					

Interested and Affected Parties: List the names of persons consulted in this column, and 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	Para in this report where the issues / responses were incorporated.
Other Competent Authorities					
Cape Nature: Name: Mr. Rhett Smart Contact: E-mail: rsmart@capenature.co.za					
Heritage Western Cape: Name: Mr. M. Janse Van Rensburg Contact: 021 483 9598 Email: Michael.JansevanRensburg@westerncape.gov.za					
OTHER AFFECTED PARTIES					
Heuningberg Nature Reserve, Bredasdorp. Contact: 028 425 5500 Email: info@capeagulhas.co.za			Unreachable via Telephone		

9 Environmental attributes associated with the alternatives.

9.1 Type of environment affected by the proposed activity.

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

9.1.1 Topography

The mining area is situated on a relatively flat gradient. The gradient changes by about 20m northwest to southeast (Refer Figure 7 below). The quarry pit as well as the stockpile areas are not visible from the R319 road or any nearby residential or farming areas.

The quarry is about 3km south of Bredasdorp town.

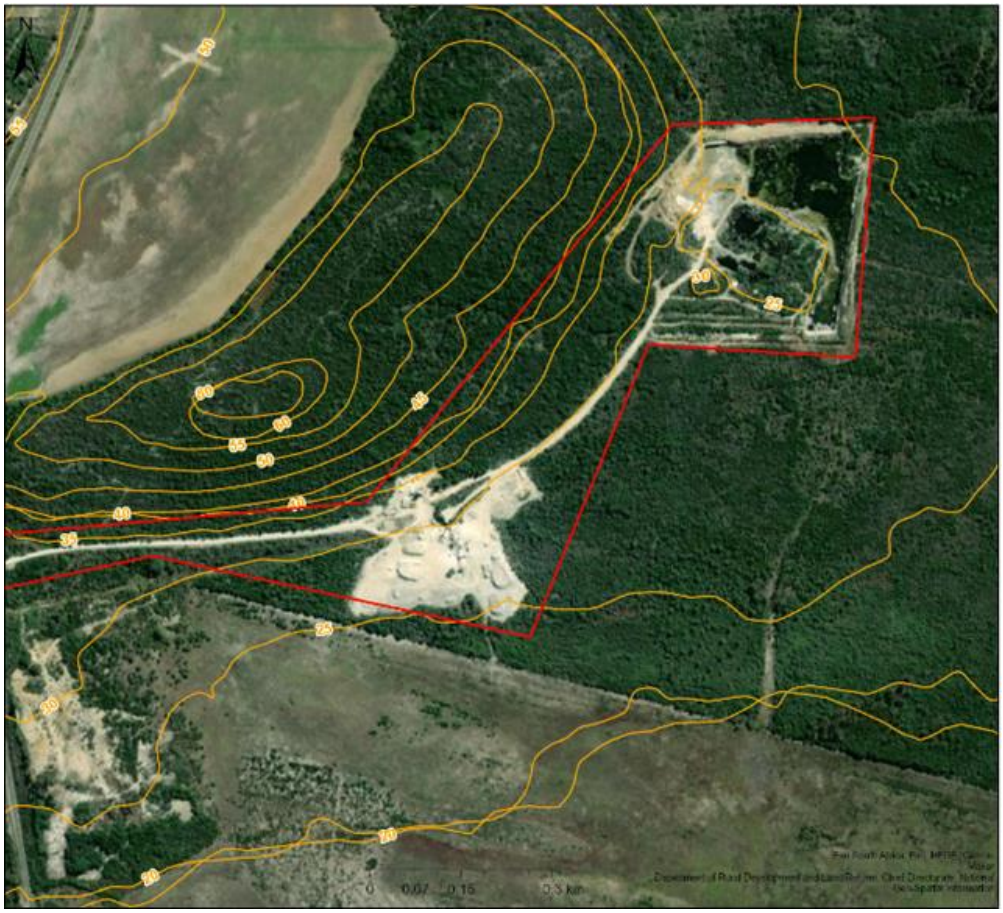


Figure 7:Topography of Bredasdorp Section 102 Application, Source: Cape Farm Mapper.

9.1.2 Visual Impact

Due to the immense amount and densely populated alien vegetation surrounding the site, the quarry pit as well as the stockpile area are not visible from the R319 road or any nearby residential or farming areas. Therefore, visual impact will be minimal from this site. Furthermore, even the extension area is within densely alien infested area.

9.1.3 Soil

According to Cape Farm Mapper, the Mining Right area soil quality is described to be minimal when it comes to development, usually shallow on hard or weathering rock, with or without intermittent diverse soils. The soils have limited pedological development. Lime generally present in part or most of the landscape. The soil depth is generally about 450mm.

9.1.4 Land Capability / Agricultural potential

Land capability and agriculture on the Mining Right area and extension is low mainly because of the dense alien plants infestation. Thus, this application will not adversely affect Land capability and agriculture of the area.

9.1.5 Natural Vegetation

At the Driefontein site the following is noted:

- The existing Mining Right area and Section 102 application area is densely populated with alien plants particularly port Jackson.
- The vegetation type is Agulhas Limestone and Agulhas Sand fynbos (Please refer to Figure 8 below).
- The existing Mining Right area and Section 102 Mining Right extension area is in an aquatic CBA area, Ecological Support Area and Terrestrial CBA (Please refer to figure 9)
- The site is not located in an officially proclaimed protected area.

Extract of the SA Vegetation Map (Mucina & Rutherford 2012), showing that the site is within Agulhas Limestone and Agulhas Sand fynbos. Limestone fynbos is the endemic-rich vegetation associated with the Bredasdorp Formation limestones. These vegetation units conservation status from NSBA are classified as Least threatened and Vulnerable, respectively.

However, the property is densely infested by alien trees such as Acacia longifolia, Acacia saligna and Eucalyptus species (blue gums). Thus, the impact of this extension is not viewed as significant as compared to the dense alien infestation.

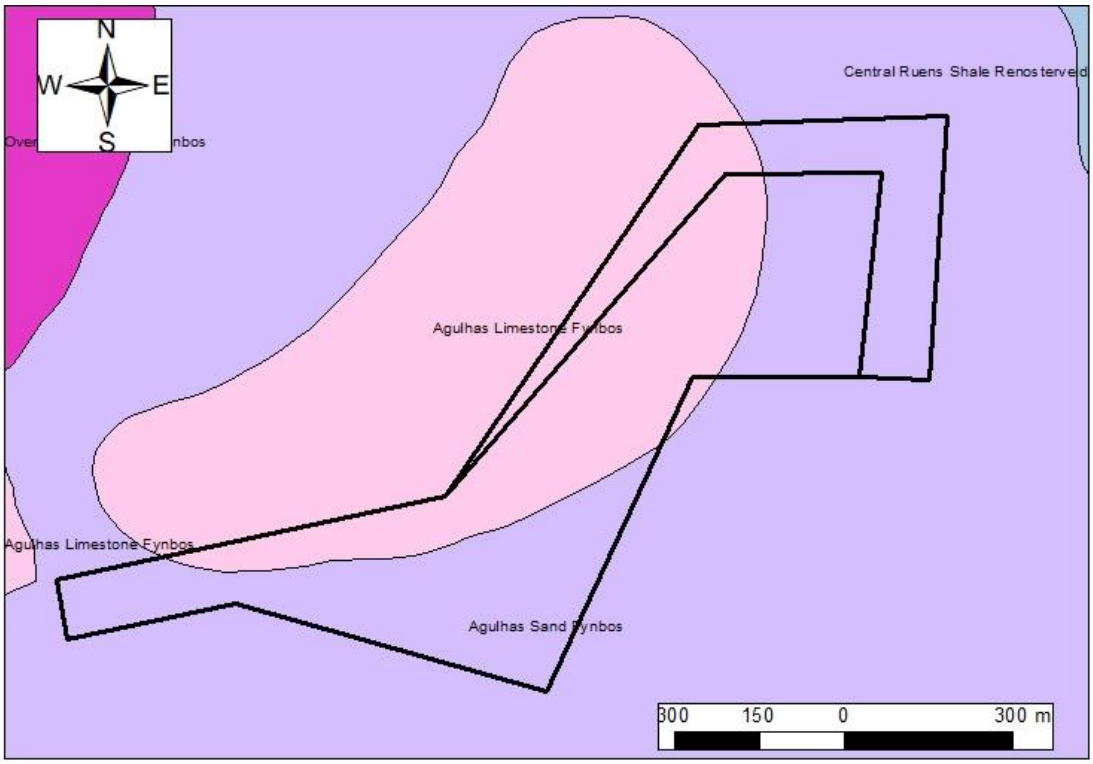


Figure 8:Extract of the SA Vegetation Map (Mucina & Rutherford 2012), showing that the site is within Agulhas Limestone and Agulhas Sand fynbos

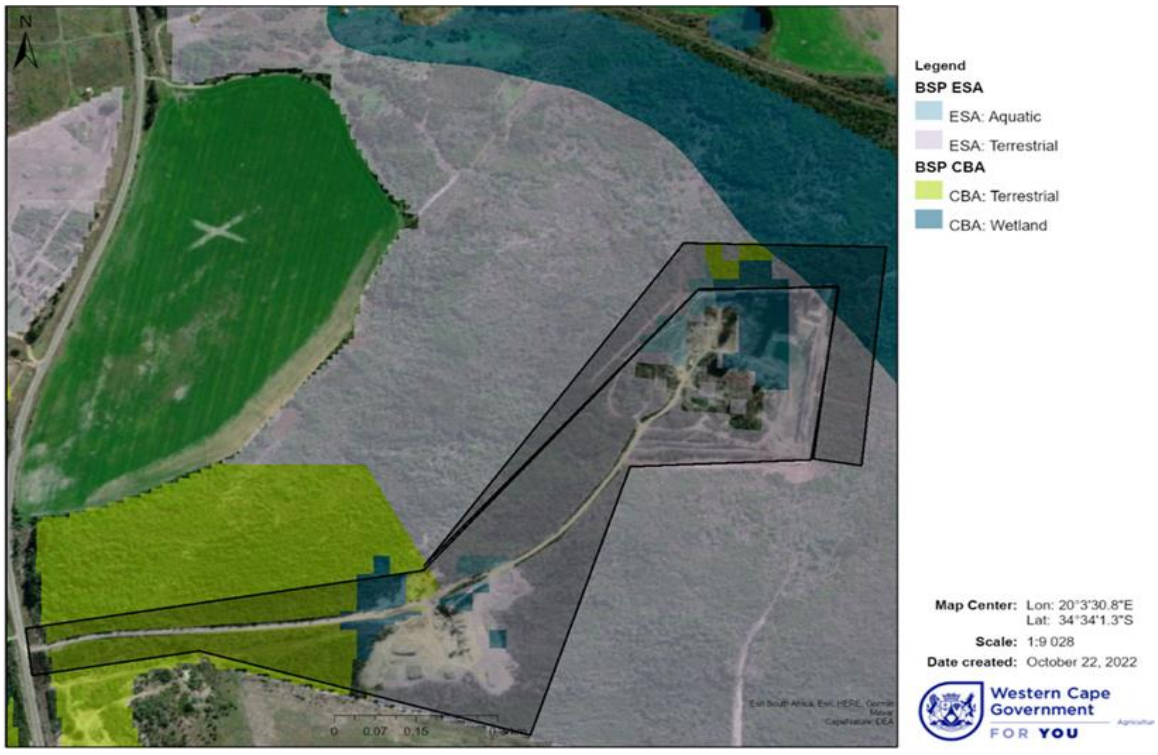


Figure 9: Critical Biodiversity Area Map (Source: Cape Farm Mapper)

Nevertheless, it is important that both the vegetation and CBA classification does not have significant bearing in this densely infested alien plant area.

9.1.6 Animal Life

Vast expanses of the same vegetation which surround the site provide a habitat suitable for species typical of the area. These include small buck, rodents (rats, mice, shrews etc.), reptiles (snakes) birds and insects. The large scale of the habitat type when compared to the extent of the proposed activities negates any significance of any impact in this regard. No specialist study appeared warranted regarding animal life as this is an existing quarry just being extended.

9.1.7 Surface Water

The mining area is situated on a relatively flat gradient. There are no drainage channels crossing the existing Mining Right area nor on the extension area in subject. The Droeriver is about 200m away from the edge of the Section 102 extension area. Nonetheless, Cape Farm mapper shows that the site is crossing a wetland in the north-eastern corner (Refer Figure 10 below). Consequently, a specialist aquatic impact study was undertaken to assess potential impact on the wetland characteristics.

Figure 10:Section 102 Application Area surface water feature

The specialist report (refer Appendix 6) has determined that with mitigation the impact on the wetlands on site will be insignificant. The report prescribes a 35m buffer from the Droeriver wetland and this will be easily achieved as the extension area is about 200m away. Section 8 and 9 of the specialist report identifies potential

impacts and describes mitigation measures which are described in detail in Section 18 and 32.8 of this draft BAR-EMP.

9.1.8 Ground Water

The site is located on quaternary catchment G50E under the Breede-Gouritz Catchment Management Agency. This site is over a major aquifer and in the current excavation, groundwater is already exposed as groundwater depth is generally 15m below ground level. According to Cape Farm Mapper, groundwater quality's electric conductivity ranges between 370 – 520. Thus, as has been the case in the existing mining, groundwater contamination must be avoided at all costs.

Groundwater is likely to be exposed eventually in the extension area and thus should DWS determine that a water use license is required then such water use license will be applied for. It is noted that for current excavation, BGCMA has informed Afrimat no WULA was needed.

9.1.9 Air Quality (Dust)

Attention is drawn to paragraph 4.8.4 of the extract from SANS regarding recognition that certain enterprises need to operate within "band 3" by virtue of "the practical operation of the enterprise..." provided that the best available control technology is applied for the duration".

"DUST FALL STANDARDS SANS 1929:2004

4.8 Dust Deposition

4.8.1 General

The four-band scale to be used in the evaluation of dust deposition is given in 4.8.2 and target, alert and action levels indicated in 4.8.3. Permissible margins of tolerance are outlines in 4.8.4 and exceptions noted in 4.8.5

4.8.2 Evaluation Criteria for Dust Deposition

Dust deposition rates shall be expressed in units of mg m^2 day-1 over a 30-day averaging period.
Dust deposition shall be evaluated against a four-band scale as presented in Table 9.

Table 9 – Four-band scale evaluation criteria for dust deposition

Band number	**Band description label**	**DUSTFALL RATE (D) (*mg* /m^2 /day [1] 30-day average)**	**Comment**
1	Residential	D < 600	Permissible for residential and light commercial.
2	Industrial	600< D < 1 200	Permissible for heavy commercial and industrial.
3	Action	1 200 < D < 2 400	Requires investigation and remediation if two sequential months lie in this band, or more than three occur in a year.
4	Alert	2 400 < D	Immediate action and remediation required following the first exceedance. Incident report to be submitted to relevant authority.

4.8.3 Target, Action and Alert Thresholds are given in Table 10

Table 10 – Target, action and alert thresholds for dust deposition

Level	**DUSTFALL RATE (D) (mg/ m² /day [1]** **30-day average)**	**Averaging period**	**Permitted frequency of exceedances**
Target	300	Annual	
Action residential	500	30 days	Three within any year, no two sequential months
Action industrial	1 200	30 days	Three within any year, no two sequential months.
Alert threshold	2 400	30 days	None. First exceedance requires remediation and compulsory report to authorities.

4.8.4 Margin of Tolerance

An enterprise may submit a request to the authorities to operate within Band 3 (ACTION Band), as specified in Table 9, for a limited period, providing that this is essential in terms of the practical operation of the enterprise (for example the final removal of a tailings deposit) and provided that the best available control technology is applied for the duration.

No margin of tolerance will be granted for operations that result in dust fall rates which fall within Band 4 (ALERT Band) as specified in Table 9.

4.8.5 Exceptions

Dust falls that exceed the specified rates but that can be shown to be the result of some extreme weather or geological event shall be discounted for the purpose of enforcement and control. Such event might typically result in excessive dust fall rates across an entire metropolitan region, and not be localised to a particular operation. Natural seasonal variations, such as dry windy period during the Highveld spring will not be considered extreme events for this definition"

Currently, the main dust sources at the quarry are:

i. Limited drilling dust as the drill rigs employed are all fitted with dust extraction systems
ii. Haul road dust from the haul vehicle tyre powdering of haul road surface
iii. Haul vehicle tipping into primary crusher hopper
iv. Crushing and screening
v. Stockpiling and stockpile dispatch loading
vi. Delivery vehicle road dust
vii. Delivery vehicle load if uncovered

As the above sources are common to all hard rock quarrying sites, the quarry industry has developed appropriate dust attenuation measures which include:

viii. Prescription of dust extraction systems on drills
ix. Water cart wetting of haul roads with consideration of armoring such roads in fresh crushed hard material to limit powdering of haul road surfaces
x. Dozing of topsoil and overburden on wind-still days

xi. Shade cloth surrounding of the tipping into primary hopper
xii. Enclosing material transfer points on the plant and providing chute drop points onto stockpiles
xiii. Covering delivery vehicle loads

As such the extension area will have the same impacts as the existing Mining Right Area.

The windrose of Bredasdorp (Diagram 1 below) shows that the most dominant winds are easterly winds.

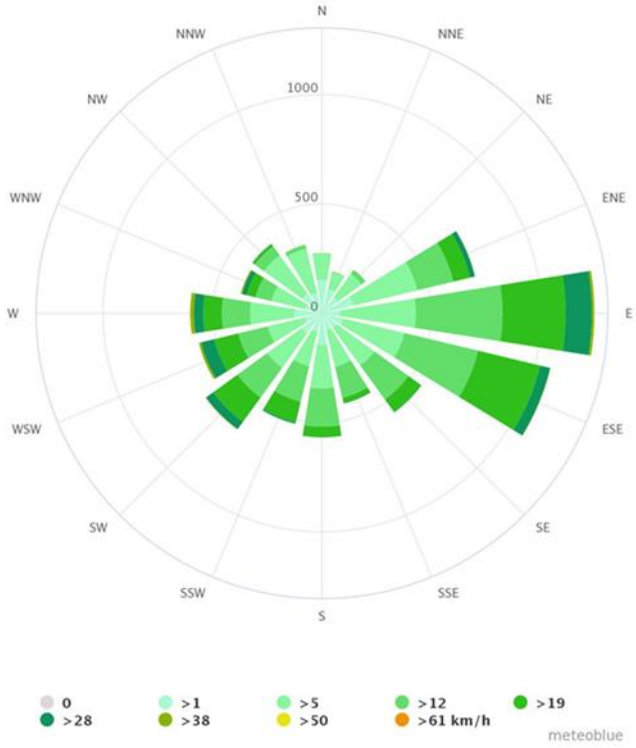


Diagram 1: Windrose of Bredasdorp Town (Source: Meteoblue

9.1.10 Noise

Noise on surrounding lands is currently low and it is anticipated that it will remain as such even after the extension of the Mining Right area. Blasting is restricted to 4 times a year. However, currently blasting takes place twice a year depending on the demand and stock available.

Existing noise sources in this site result from:

i. drilling for blasting
ii. blasting which is likely to occur at most once every 6 months
iii. excavator loading shot rock at the quarry face
iv. Haul vehicles
v. Crushing and screening
vi. Stockpiling and stockpile dispatch loading (front-end loader or excavator)
vii. Delivery and ready-mix vehicles

As is the case of dust, the quarry industry has developed a set of established noise attenuation measures including:

Maintenance of exhaust silencers on plant and trucks
Rubber belting enclosure of primary and secondary crusher structures

9.1.11 Traffic

There will be no change in traffic as per the current status of the quarry and access will remain the same as per the approved EMP.

9.2 Description of the current land uses.

9.2.1 On-site land use

The current site is used for mining through an approved Mining Right.

9.2.2 Surrounding Land use

In terms of surrounding land use, the site is surrounded by farming activities and presence of the Heuningberg Nature Reserve north west of the site. The Bredasdorp town is about 3km north from Mining Right area.

9.3 Description of specific environmental features and infrastructure on the site.

Refer to section 9.2.2

i. Ski-Cabin offices, Ski-Cabin Chemical Toilets, one changing-room and personnel amenities brick building
ii. Fuel diesel bund
iii. Weighbridge
iv. Security kiosk Wendy house
v. Ready-mix plant
vi. Crushing Plant
vii. Stockpile area
viii. Current Excavation
ix. Haul road from the pit
x. Access road

9.4 Environmental and current land use map.

(Show all environmental and current land use features)

Refer figures as follows:
Figure 1: Locality Plan
Figure 2: Regulation 2(2) drawing of Driefontein Quarry
Figure 3: Geology Plan (as per Site Plan Consulting Report)
Figure 4: Mining Method & Overall Mine Site Layout Plan
Figure 6: Cape Agulhas Spatial Development Framework 2017-2022
Figure 7: Surrounding Landowners (Source: Cape Farm Mapper)
Figure 8: Topography of Bredasdorp Section 102 Application, Source: Cape Farm Mapper.
Figure 9: Extract of the SA Vegetation Map (Mucina & Rutherford 2012), showing that the site is within Agulhas Limestone and Agulhas Sand fynbos
Figure 10: Critical Biodiversity Area Map (source Cape Farm Mapper).
Figure 11: Section 102 Application Area surface water feature

10 Impacts & risks identified (Nature, significance, consequence, extent, duration and probability of the impacts)

Note that in this draft Report, only the potential impacts identified are the typical impacts known for such activities. This will be subject to further public participation to identify additional / different impacts. Step one is to identify applicable impacts, as per table below. Second step is to ascribe significance and details as per table thereafter.

10.1 Impact Identification

Activity. **This table identifies potential impacts but does not differentiate between negative or beneficial impacts.**	Geology	Topography	Soil/ Topsoil	Visual	Land Capability	Vegetation	Surface Water	Ground Water	Animal Life	Noise	Air Quality (Dust)	Social/ Economic	Archaeology/	Hydrocarbon	Traffic /Access
1. Pre-establishment phase															
1.1. Application for amendment of the Mining Right area under Section 102 of the MPRDA															
2. Establishment															
2.1. Demarcate new Mining Right area boundary as defined in the Regulation 2 (2) sketch plan															
2.2. Conduct Environmental Induction training to staff															
2.3. Continue use of chemical toilets in the ski-cabins															
2.4. Continue using the already existing ready-mix plant															
2.5. Continue use of logistical facilities i.e stores, personnel amnesties, office, dispatch office etc															
2.6. Continue using the already in place diesel tank															
2.7. Continue using the already approved haul road and access roads															
3. Operational phase															
3.1. Remove alien trees on the extension area for excavation extension area															
3.2. Remove any remnant indigenous vegetation and topsoil 300-500mm to topsoil berms as prescribed by the Mine Plan and EMP															
3.3. Drilling and blasting															
3.4. Loading and hauling shot rock to crusher using haul road out of existing excavation.															
3.5. Crushing and screening															
3.6. Stockpiling at current approved stockpile areas															
3.7. Dispatch loading of delivery vehicles.															

Activity. **This table identifies potential impacts but does not differentiate between negative or beneficial impacts.**	Geology	Topography	Soil/ Topsoil	Visual	Land Capability	Vegetation	Surface Water	Ground Water	Animal Life	Noise	Air Quality (Dust)	Social/ Economic	Archaeology/	Hydrocarbon	Traffic /Access
3.8. Conduct dust suppression on haul roads, stockpile area and plant															
3.9. Continued use of the ready-mix plant															
4. Decommissioning phase including closure															
4.1. Removed all logistical facilities and chemical toilet															
4.2. Finalise sloping of final pit edges															
4.3. Rip/scarify hardened/compacted surface of plant and stockpiling area.															
4.4. Spread topsoil from berms over ripped area (not excavation)															
4.5. Construct safety berm and trench around excavation perimeter and install livestock proof fence and danger signpost.															
4.6. Grass seed re-top soiled areas.															
4.7. Either retain or remove delivery road (to landowner's decision) by scarification, top soiling and grass seeding (retain bell-mouth)															
4.8. Conduct final Environmental Audit Report (EAR) for closure															
4.9. Apply for closure (submit closure application)															
5. Aftercare and maintenance activities (2 years)															
5.1. Monitor revegetation success and continue hand seeding when necessary, annually.															

10.2 Impact rating

The table below does not include description of the beneficial impact of operational monitoring or decommissioning rehabilitation measures (as these should be fairly clear to the reader). The inclusion of these aspects results in an unnecessarily long report.

Activity	Nature of impact	Extent	Duration	Probability	Significance	Extent to which impact can cause or be:		
						reversed	irreplaceable loss of resource	avoided, managed or mitigated
1. Pre-establishment phase								
1.1. Application for amendment of the Mining Right area under Section 102 of the MPRDA								
2. ESTABLISHMENT ACTIVITIES								
2.1. Demarcate new Mining Right area boundary as defined in the Regulation 2 (2) sketch plan								
2.2. Conduct Environmental Induction training to staff								
2.3. Continue use of chemical toilets in the ski-cabins								
2.3.1. Surface Water	Spill from personnel amenities	Very localised	Until clean-up	Unlikely	Negligible	Yes	No	Can be fully mitigated
2.3.2. Groundwater	Spill from personnel amenities	Very localised	Until filtered by natural process	Highly unlikely	Insignificant	Unlikely	No	NA
2.4. Continue use of the ready-mix plant								

Activity	Nature of impact	Extent	Duration	Probability	Significance	Extent to which impact can cause or be:		
						reversed	irreplaceable loss of resource	avoided, managed or mitigated
2.4.1. Surface Water	Spill from production of concrete	Very localised	Until clean-up	Unlikely	Negligible	Yes	No	Can be fully mitigated
2.4.2. Groundwater	Spill from production of concrete	Very localised	Until filtered by natural process	Highly unlikely	Insignificant	Unlikely	No	Can be fully mitigated
2.4.3. Noise	- Noise generated by earthmoving equipment	Very localised	Duration of activity	Definite	Insignificant (None on surrounding land users)	No	No	Managed/ mitigated through ensuring silencers are in operation
2.4.4. Air Quality	- Dust generated by earthmoving equipment - Dust coming out of the silos - Dust coming out of the mixer truck - Dust coming out of the bins	Local	Duration of activity	Definite	Insignificant (None on surrounding land users)	Yes, if mitigations recommended are implemented.	No	Managed/ Mitigated through sprayers systems, installing dust suppression rings and installing dust collectors. -
2.4.5. Hydrocarbon	- Potential Hydrocarbon leaks potentially from vehicles on site	Local	Until clean-up	Possible	Insignificant	Fully reversible	No	Hydrocarbon management plan must be put in place to prevent occurrence
2.5. Continue use of logistical facilities i.e. stores, personnel amnesties, office, dispatch office etc								
2.6. Continue using the already in place diesel tank								

Activity	Nature of impact	Extent	Duration	Probability	Significance	Extent to which impact can cause or be:		
						reversed	irreplaceable loss of resource	avoided, managed or mitigated
2.7. Continue using the already approved haul road and access roads								
3. OPERATIONAL PHASE ACTIVITIES								
3.1. Remove alien trees on the extension area for excavation extension area								
3.1.1. Noise	Noise generated by earthmoving equipment	11 ha	Duration of activity	Definite	Insignificant (None on surrounding land users)	No	No	Managed/ mitigated through ensuring silencers are in operation
3.1.2. Air Quality	Dust generated by earthmoving equipment	Local	Duration of activity	Definite	Insignificant (None on surrounding land users)	If required, wetting of affected areas could take place	No	Dust could be mitigated by wetting the haul road
3.1.3. Hydrocarbon	Potential Hydrocarbon leaks	Local	Until clean-up	Possible	Insignificant	Fully reversible	No	Hydrocarbon management plan must be put in place to prevent occurrence
3.2. Remove any remnant indigenous vegetation and topsoil 300-500mm to topsoil berms as prescribed by the Mine Plan and EMP								

Activity	Nature of impact	Extent	Duration	Probability	Significance	Extent to which impact can cause or be:		
						reversed	irreplaceable loss of resource	avoided, managed or mitigated
3.2.1. Vegetation	Indigenous will be removed to topsoil berm	Over the ±11ha extension area	During establishment	Definitely	Moderate	Yes	No	Must be managed
3.2.2. Noise	Noise generated by earthmoving equipment	Local	Duration of activity for life of mine	Definite	Low	No	No	Managed/ mitigated through ensuring silencers are in operation
3.2.3. Air Quality	Dust generated by earthmoving equipment	Local	Duration of activity for life of mine	Definite	Low	If required, wetting of affected areas could take place	No	Dust could be allayed by wetting here.
3.2.4. Hydrocarbon	Potential Hydrocarbon leaks	Local	Until clean-up	Possible	Insignificant	Fully reversible	No	Hydrocarbon management plan must be put in place to prevent occurrence
3.3. Drilling and blasting								
3.3.1. Topography	Topography will be changed as part of the excavation	Over the ±11ha extension area	Life of mine	Definitive	Moderate	Managed	No	Managed through rehabilitation
3.3.2. Noise	Noise generated by earthmoving equipment	Local	Duration of activity for life of mine	Definite	Low	No	No	Managed/ mitigated through ensuring silencers are in operation
3.3.3. Air Quality	Dust generated by earthmoving equipment	Local	Duration of activity for life of mine	Definite	Insignificant (None on surrounding land users)	If required, wetting of affected areas could take place	No	Dust could be allayed by wetting

Activity	Nature of impact	Extent	Duration	Probability	Significance	Extent to which impact can cause or be:		
						reversed	irreplaceable loss of resource	avoided, managed or mitigated
3.3.4. Hydrocarbon	Potential Hydrocarbon leaks	Local	Until clean-up	Possible	Insignificant	Fully reversible	No	Hydrocarbon management plan must be put in place to prevent occurrence
3.4. Loading and hauling shot rock to crusher using haul road out of existing excavation.								
3.4.1. Noise	Noise generated by loading and hauling equipment	Local	Duration of activity for life of mine	Definite)	Low	No	No	Managed/ mitigated through ensuring silencers are in operation
3.4.2. Air Quality	Dust generated by loading and hauling equipment	Local	Duration of activity for life of mine	Possible	Low	No	No	Dust could be allayed by wetting,
3.4.3. Hydrocarbon	Potential Hydrocarbon leaks	Local	Until clean-up	Possible	Insignificant	Fully reversible	No	Hydrocarbon management plan must be put in place to prevent occurrence
3.5. Crushing and screening								
3.5.1. Noise	Noise generated by crushing and screening	Local	Duration of activity for life of mine	Definite)	Low	No	No	Managed/ mitigated through ensuring silencers are in operation
3.5.2. Air Quality	Noise generated by crushing and screening	Local	Duration of activity for life of mine	Possible	Low	No	No	Dust could be allayed by wetting,

Activity	Nature of impact	Extent	Duration	Probability	Significance	Extent to which impact can cause or be:		
						reversed	irreplaceable loss of resource	avoided, managed or mitigated
3.5.3. Hydrocarbon	Potential Hydrocarbon leaks	Local	Until clean-up	Possible	Insignificant	Fully reversible	No	Hydrocarbon management plan must be put in place to prevent occurrence
3.6. Stockpiling at current approved stockpile areas								
3.6.1. Noise	Noise generated by loading and hauling equipment	Local	Duration of activity for life of mine	Definite)	Low	No	No	Managed/ mitigated through ensuring silencers are in operation
3.6.2. Air Quality	Dust generated by loading and hauling equipment	Local	Duration of activity for life of mine	Possible	Low	No	No	Dust could be allayed by wetting,
3.6.3. Hydrocarbon	Potential Hydrocarbon leaks	Local	Until clean-up	Possible	Insignificant	Fully reversible	No	Hydrocarbon management plan must be put in place to prevent occurrence
3.7. Dispatch loading of delivery vehicles.								
3.8. Conduct dust suppression on haul roads, stockpile area and plant								
3.9. Continued use of the ready-mix plant								

Activity	Nature of impact	Extent	Duration	Probability	Significance	Extent to which impact can cause or be:		
						reversed	irreplaceable loss of resource	avoided, managed or mitigated
4. DECOMMISSIONING PHASE ACTIVITIES								
4.1. Removed all logistical facilities and chemical toilet								
4.1.1. Noise	Noise generated by earthmoving equipment	Local	Decommissioning	Definite	Insignificant	No	No	Managed/ mitigated through ensuring silencers are in operation
4.1.2. Air Quality	Dust generated by earthmoving equipment	Local	Decommissioning	Definite	Insignificant	If required, wetting of affected areas could take place	No	Dust could be allayed by wetting.
4.1.3. Hydrocarbon	Potential Hydrocarbon leaks	Local	Decommissioning	Possible	Insignificant	Fully reversible	No	Hydrocarbon management plan must be put in place to prevent occurrence
4.2. Finalise sloping of final pit edges								
4.2.1. Noise	Noise generated by earthmoving equipment	Local	At closure	Definite	Insignificant	No	No	Managed/ mitigated through ensuring silencers are in operation
4.2.2. Air Quality	Dust generated by earthmoving equipment	Local	At closure	Definite	Insignificant	If required, wetting of affected areas could take place	No	Dust could be allayed by wetting.

Activity	Nature of impact	Extent	Duration	Probability	Significance	Extent to which impact can cause or be:		
						reversed	irreplaceable loss of resource	avoided, managed or mitigated
4.2.3. Hydrocarbon	Potential Hydrocarbon leaks	Local	At closure	Possible	Insignificant	Fully reversible	No	Hydrocarbon management plan must be put in place to prevent occurrence
4.3. Rip/scarify hardened/compacted surface of plant and stockpiling area.								
4.3.1. Noise	Noise generated by earthmoving equipment	Local	At closure	Definite	Insignificant	No	No	Managed/ mitigated through ensuring silencers are in operation
4.3.2. Air Quality	Dust generated by earthmoving equipment	Local	At closure	Definite	Insignificant	If required, wetting of affected areas could take place	No	Dust could be allayed by wetting.
4.3.3. Hydrocarbon	Potential Hydrocarbon leaks	Local	At closure	Possible	Insignificant	Fully reversible	No	Hydrocarbon management plan must be put in place to prevent occurrence
4.4. Spread topsoil from berms over ripped area (not excavation)								
4.4.1. Noise	Noise generated by earthmoving equipment	Local	At closure	Definite	Insignificant	No	No	Managed/ mitigated through ensuring silencers are in operation

Activity	Nature of impact	Extent	Duration	Probability	Significance	Extent to which impact can cause or be:		
						reversed	irreplaceable loss of resource	avoided, managed or mitigated
4.4.2. Air Quality	Dust generated by earthmoving equipment	Local	At closure	Definite	Insignificant	If required, wetting of affected areas could take place	No	Dust could be allayed by wetting.
4.4.3. Hydrocarbon	Potential Hydrocarbon leaks	Local	At closure	Possible	Insignificant	Fully reversible	No	Hydrocarbon management plan must be put in place to prevent occurrence
4.5. Construct safety berm and trench around excavation perimeter and install livestock proof fence and danger signpost.								
4.5.1. Noise	Noise generated by earthmoving equipment	Local	At closure	Definite	Insignificant	No	No	Managed/ mitigated through ensuring silencers are in operation
4.5.2. Air Quality	Dust generated by earthmoving equipment	Local	At closure	Definite	Insignificant	If required, wetting of affected areas could take place	No	Dust could be allayed by wetting.
4.5.3. Hydrocarbon	Potential Hydrocarbon leaks	Local	At closure	Possible	Insignificant	Fully reversible	No	Hydrocarbon management plan must be put in place to prevent occurrence
4.6. Grass seed re-top soiled areas.								

Activity	Nature of impact	Extent	Duration	Probability	Significance	Extent to which impact can cause or be:		
						reversed	irreplaceable loss of resource	avoided, managed or mitigated
4.7. Either retain or remove delivery road (to landowner's decision) by scarification, top soiling and grass seeding (retain bell-mouth)								
4.8. Conduct final Environmental Audit Report (EAR) for closure								
4.9. Apply for closure (submit closure application)								
5. Aftercare and maintenance activities (2 years)								
5.1. Monitor revegetation success and continue hand seeding when necessary annually.								

11 Methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks;

(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).

(NEMA), potential impact, significance and duration. Such table is included in the draft Basic Assessment report which is being made available to all identified Interested and Affected Parties.

Any relevant responses received would then inform a revision of the site layout plan. Although there have been no revisions required as yet, it is possible that the site layout require revision through continued input by I&AP's as well as specialist studies yet to be conducted.

An initial table was compiled which described each activity (whether listed or not in terms of NEMA), potential impact, significance and duration. Such table is included in the draft reporting, made available to all Interested and Affected Parties.

The criteria for the description and assessment of environmental impacts were drawn from the EIA Regulations 2014. The assessment of the impacts has been conducted according to a synthesis of criteria required by the integrated environmental management procedure.

The significance of both positive and negative potential impacts was determined through the evaluation of impact consequence and likelihood of occurrence. The significance of potential impacts that may result from the proposed project was determined in order to assist decision-makers.

The significance of an impact is defined as a combination of the **consequence** of the impact occurring and the **probability** that the impact will occur. The following risk assessment model has been used for determination of the significance of impacts.

SIGNIFICANCE = CONSEQUENCE X PROBABILITY
WHERE Consequence = Extent + Intensity + Duration

The criteria used to determine impact consequence are presented on the table below. Each rating has been allocated a score weighting

Table 1: Criteria used to determine the Consequence of the Impact

Rating	Definition of Rating	Score
A .Extent - the area over which the impact will be experienced		
Local	limited to the immediate area(s) around the project site -	1
Regional	extends over a larger area that would include a major portion of an area or province	2
National/International	nationally or beyond	3

Rating	Definition of Rating	Score
B. Intensity - the magnitude of the impact in relation to the sensitivity of the receiving environment, taking into account the degree to which the impact may cause irreplaceable loss of resources		
Low	Site-specific and wider natural and/or social functions and processes are negligibly altered	1
Medium	Site-specific and wider natural and/or social functions and processes continue albeit in a modified way	2
High	Site-specific and wider natural and/or social functions or processes are severely altered	3
C. Duration– the lifetime of the impact, that is measured in relation to the lifetime of the proposed development and its reversibility		
Short-term	(0 to 3 years)	1
Medium-term	(3 to 10 years) confined to the construction period	2
Long-term	(more than 10 years)	3
Permanent	beyond the anticipated lifetime of the project	4

The combined score of these three criteria corresponds to a Consequence Rating, as follows:

Table 2: Method used to determine the Consequence Score

Combined Score (A+B+C)	3 – 4	5	6	7	8 - 9
Consequence Rating	Very low	Low	Medium	High	Very high

Once the consequence was derived, the probability of the impact occurring was considered. Probability of impact occurrence - this describes the likelihood of the impacts actually occurring. The impact may occur for any length of time during the life cycle of the activity, and not at any given time

- Improbable (very low to low likelihood).
- Possible (likely).
- Probable (distinct possibility).
- Definite (the impact would occur regardless of prevention or mitigation measures)

The probability of the impact using is presented in the table below.

Table 3: Probability Classification

Probability– the likelihood of the impact occurring	
Improbable	1
Possible	2
Probable	3
Definite	4

Table 4: Impact significance ratings

		Probability			
		Improbable	**Possible**	**Probable**	**Definite**
Consequence	Very Low	INSIGNIFICANT	INSIGNIFICANT	VERY LOW	VERY LOW
	Low	VERY LOW	VERY LOW	LOW	LOW
	Medium	LOW	LOW	MEDIUM	MEDIUM
	High	MEDIUM	MEDIUM	HIGH	HIGH
	Very High	HIGH	HIGH	VERY HIGH	VERY HIGH

The impact significance rating should be considered by authorities in their decision-making process based on the implications of ratings ascribed below:

- **Insignificant:** the potential impact is negligible and will not have an influence on the decision regarding the proposed activity/development.
- **Very Low:** the potential impact is very small and should not have any meaningful influence on the decision regarding the proposed activity/development.
- **Low:** the potential impact may not have any meaningful influence on the decision regarding the proposed activity/development.
- **Medium:** the potential impact should influence the decision regarding the proposed activity/development.
- **High**: the potential impact will affect the decision regarding the proposed activity/development.**Very High:** the proposed activity should only be approved under special circumstances

12 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)

Any impacts and mitigation that are not identified and addressed here and raised by I&APs will be addressed in the Final BAR-EMP.

13 The possible mitigation measures that could be applied and the level of risk.

Not Applicable. No concerns raised at this stage.

14 Motivation where no alternative sites were considered.

Not Applicable.

15 Statement motivating the alternative development location within the overall site.

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

The site layout that has been proposed has been informed by the following factors:

1. The applicant has been mining in this area since early 1990s and thus knows the area.
2. The existing Mine and infrastructure are not going to be changed by the application extension area.

16 Full description of process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred site through the life of the activity.

Refer para 10.2.

17 Assessment of each identified potentially significant impact and risk

(This section of the report must consider all the known typical impacts of each of the activities (including those that could or should have been identified by knowledgeable persons) and not only those that were raised by registered interested and affected parties)

Refer also table in para 10.2 which lists each impact associated with the proposed activities.

This is already an existing site with an EMP that that has some of the aspects identified already assessed.

18 Summary of specialist reports.

An aquatic specialist study has been as per appendix 6. See summary below:

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED.
Aquatic Impact Specialist Report	**"*Table 7: Impact assessment for disturbance of wetland habitat and biota.*** ***Recommended mitigation measures****:* • *To prevent impacting upon HGM1, an aquatic buffer zone of 35m (minimum) should be applied from any remaining aquatic habitat on the Droe River. The proposed buffer must be adopted as a No-Go Zone for any activities excepting alien plant removal.* • *To minimize impacts upon HGM2, where possible, quarry operations within the pit should work on one face at a time, to allow for any aquatic fauna to move and seek refuge in another wet area of the pit.* • *During site preparation (before blasting etc.) near the artificial wetland areas in the pit, should any nests or aquatic fauna need to be moved, CapeNature must be consulted to advise, and assist if needed.* • *Any fauna (frogs, snakes, fledglings, etc.) that are found within the working area must be moved to the closest point of similar habitat type outside of the areas to be impacted, ideally into the Droe River corridor.* • *Removed wetland vegetation and soils can be transplanted in other areas of the pit to aid rehabilitation as work progresses.* • *During decommissioning, the banks should be sloped/terraced and stabilized. Any deep excavation areas in the pit can be infilled to promote a shallow waterbody*." ***"Table 8: Impact assessment for localised changes to surface water quality*** ***Recommended mitigation measures:*** • *Prevent any potential sources of pollution from entering the surrounding environment (e.g. litter, hydrocarbons from vehicles & machinery, etc.) and any solid domestic waste must be removed and disposed of offsite. Vehicles must be maintained to prevent leaks.* • *No surface runoff from the excavation area should not be directed into the surrounding environment. Measures, such as a low contour berm, can be installed outside of the disturbance area, to capture sediment and*	x	Section 9.1.7 and Section 32.8

	promote infiltration before leaving the mining right area. Remove any accumulated sediment deposited after heavy rainfall events and maintain the berm. • *Where possible, topsoil removed during the mining phase must be conserved and used in the rehabilitation. It can potentially be used to create the stormwater berms and then replaced following decommissioning.* • *Compliance with the mitigation recommendations must be audited by a suitably qualified independent Environmental Control Officer with an appropriately timed audit report. Monitoring for non-compliance must be done on a daily basis by the mine managers."* "***Table 9: Impact assessment for cumulative impacts*** ***Recommended mitigation measures:*** • *Improved land management, including alien tree removal, the rehabilitation of indigenous vegetation, and including conservation objectives into the end land use plan.* • *Groundwater monitoring"*		

19 Environmental impact statement

19.1 Summary of the key findings of the environmental impact assessment

Refer also table in para 10.2 which lists each impact associated with the proposed activities.
The findings are that the proposed mining of this site in terms of this plan will result in disturbing an area which is highly infested by alien vegetation.

In respect of the environmental impacts, the EAP finds that appropriate mitigation measures generally applied in the quarry industry should adequately meet the required levels of attenuation and risk reduction.

19.2 Final Site Map

Provide a map at an appropriate scale which superimposes the proposed overall activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers.

It is to be noted that detailed assessments of all aspects of the existing disturbed sites against the requirements for the proposed project had fully been considered by the EAP at time of preparation of the Overall Layout Plans and consequently adaptions to initial sketches were already included in the site plans contained in this report. Refer to figure 4.

It is acknowledged that further changes may be made following receipt of inputs by I&APs following distribution of this report.

19.3 Summary of the positive and negative impacts and risks of the proposed activity and identified alternatives.

1. Given that no better alternatives have been identified at this stage, the positive and negative impacts of the proposed activities as contained in this document are summarised below:
2. Impact on vegetation: The site is highly infested by alien vegetation and consequently impact on vegetation will be not significant on vegetation as a result of this mining right extension application.
3. Visual impact: As stated above in 1, the site is highly infested by alien vegetation. Therefore, the site is not visible to most surrounding uses as the alien vegetation acts as a visual screen and leads to insignificant visual impact.
4. Potential dust and noise impact from the readymix, crushing and screening, and earthmoving equipment. These impacts have been adequately mitigated to date to ensure that they are not significant for surrounding users.
5. Potential hydrocarbon impact. Hydrocarbon impact management is detailed in Section 32.5 “Domestic and Industrial waste and hydrocarbon management”.

Positive impacts include:

1. Supply of material to the construction industry, municipal projects and South African National Roads Agency (SANRAL)
2. Rental income to the landowner

3. Employment opportunities for contractors and employees in the area

20 Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr;

Based on the assessment and where applicable the recommendations from specialist reports, the recording of proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPr as well as for inclusion as conditions of authorisation**.**

Impact Management Objectives

i. To minimize the impact on the vegetation in Driefontein Quarry by beaconing and where necessary fencing of the site to avoid unwarranted movement outside designated areas.
ii. To continue following the existing measures in place to mitigate the impacts of dust, noise and hydrocarbon.
iii. Access to no go areas must be prevented through demarcation and environmental education of all staff members.
iv. To ensure that the proposed operation does not breach any policies of the local municipality, SDF, IDP, bi-laws and any other policy documentation.
v. To continue monitoring activities on site to ensure negative impacts are mitigated.
vi. The overall objective is to limit the impact of operational mining and residual post mining impacts.

The overall objective is to limit the impact of operational mining and residual post mining impacts.

The *impact management outcomes* to be included in the EMP, are therefore:

- A prevention strategy should be implemented in monitoring alien vegetation, effective rehabilitation of disturbed areas and prevention of unnecessary disturbance of natural areas.
- Ensure that no access to areas outside of the Mining Right area.
- Achieving minimal operational impacts during life of mine.
- Achieving a minimal additional post mining residual impact.

21 Aspects for inclusion as conditions of Authorisation.

Any aspects which must be made conditions of the Environmental Authorisation

i. All prescriptions of the EMPr must be adhered to by the applicant

22 Description of any assumptions, uncertainties & gaps in knowledge.

(Which relate to the assessment and mitigation measures proposed)

None known.

23 Reasoned opinion as to whether the proposed activity should or should not be authorised

23.1 Reasons why the activity should be authorized or not.

- The site offers extremely good rock suitable for the high-quality concrete and any road-stone requirements in the site's district.
- Supply of material from this site offers vastly reduced transport cost and significantly
- As such this EAP does not believe that there is any reason why the activity should not be authorised, provided strict controls as prescribed in the EMP in terms of monitoring, operational management and rehabilitation are implemented.

23.2 Conditions that must be included in the authorisation

1) All prescriptions of the EMP must be adhered to by the applicant

24 Period for which the Environmental Authorisation is required.

30 Years.

25 Undertaking

Confirm that the undertaking required to meet the requirements of this section is provided at the end of the EMPr and is applicable to both the Basic assessment report and the Environmental Management Programme report.

Confirmed.

26 Financial Provision

State the amount that is required to both manage and rehabilitate the environment in respect of rehabilitation.

There is an existing rehabilitation fund in respect of Driefontein Quarry. Such fund is updated annually and provided for at the DMRE through bank guarantee in favour of the DMRE. In case of this application area an additional amount of R **511 275.72** must be provided for as a top up to the existing guarantee.

26.1 Explain how the aforesaid amount was derived.

A site specific and site condition of the DMRE template adaptation for calculating the Quantum for Financial Provision and the resultant table is as shown below.

CALCULATION OF THE QUANTUM

Applicant :	**Afrimat Aggregates Operations (Pty) Ltd**		
Evaluator:	**Siphumelelo Mbali**	**Location:**	**Bredasdorp**
Reference :	**WC 30/5/1/2/2/ 134MR**	**Date:**	**Dec 2022**

Environmental Parameters

Risk Class	C
Area sensitivity	Medium
Nature of terrain	Flat
Proximity to Urban Ara	Urban

No.	Description	Unit	A Quantity	B Master Rate	C Multiplication factor	D Weighting factor 1	E=A*B*C*D Amount (Rands)
1	Dismantling of processing plant and related structures (including overland conveyors and pow erlines)	m3	0	R 6.82	1	1	R 0.00
2 (A)	Demolition of steel buildings and structures	m2	0	R 95.00	1	1	R 0.00
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	R 140.00	1	1	R 0.00
3	Rehabilitation of access roads	m2	0	R 17.00	0.5	1	R 0.00
4 (A)	Demolition and rehabilitation of electrified railw ay lines	m	0	R 165.00	1	1	R 0.00
4 (B)	Demolition and rehabilitation of non-electrified railw ay lines	m	0	R 90.00	1	1	R 0.00
5	Demolition of housing and/or administration facilities	m2	0	R 190.00	1	1	R 0.00
6	Opencast rehabilitation including final voids and ramps	ha	0	R 96 700.00	0.52	1	R 0.00
7	Sealing of shafts adits and inclines	m3	0	R 51.00	1	1	R 0.00
8 (A)	Rehabilitation of overburden and spoils	ha	0	R 66 400.00	1	1	R 0.00
8 (B)	Rehabilitation of processing w aste deposits and evaporation ponds (non-polluting potential)	ha	0	R 82 700.00	1	1	R 0.00
8 (C)	Rehabilitation of processing w aste deposits and evaporation ponds (polluting potential)	ha	0	R 240 200.00	0.66	1	R 0.00
9	Rehabilitation of subsided areas	ha	0	R 55 600.00	1	1	R 0.00
10	General surface rehabilitation	ha	11.6759	R 52 600.00	0.5	1	R 307 076.17
11	River diversions	ha	0	R 52 600.00	1	1	R 0.00
12	Fencing	m	0	R 60.00	1	1	R 0.00
13	Water management	ha	0	R 20 000.00	0.25	1	R 0.00
14	maintenance and aftercare	ha	0	R 7 000.00	1	1	R 0.00
15 (A)	Specialist study	Sum	1	R 28 669.94	1	1	R 28 669.94
15 (B)	Specialist study	Sum	1	R 28 669.94	1	1	R 28 669.94
					Sub Total 1		R 364 416.05
1	Preliminary and General		R 43 729.93		weighting factor 2 1		R 43 729.93
2	Contingencies		R 36 441.60				R 36 441.60
					Subtotal 2		R 444 587.58
					VAT (15%)		R 66 688.14
					Grand Total		**R 511 275.72**

26.2 Confirm this amount can be provided for from operating expenditure.

(Confirm that the amount, is anticipated to be an operating cost and is provided for as such in the Mining work programme, Financial and Technical Competence Report or Prospecting Work Programme as the case may be).

The Cash Flow Forecast has been prepared by the applicant as part of the Mining Work Program and that includes a provision for Rehabilitation in the mining cost. The applicant confirms herewith that the amount can be (and will be) provided from operating expenditure.

27 Specific Information required by the competent Authority

27.1 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:-

27.1.1 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 an **Appendix** .

Socio-economic impact occurs as a result of the following parties' socio-economic status being altered:

- Landowners: Positive impact in respect of surface rental and / or other income as a result of the sand mining.
- Mining Company and employees: Guaranteed income for duration of the project.
- Consumer: Guaranteed supply of sand at pre-determined prices
- The applicant company is bound by prescriptions of the Social and Labour Plan to contribute to the community's skills development and must also implement a Local Economic Development project which meets the satisfaction of the DMRE and local authority.
- The social and labour plan also prescribes skills development for staff and community members.

27.1.2 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 that Act, attach the investigation report as **Appendix** and confirm that the applicable mitigation is reflected herein).

Draft BAR will be submitted to the HWC for comment and ay studies needed will be undertaken.

28 Other matters required in terms of sections 24(4)(a) & (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.

Not Applicable

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

29 Draft environmental management programme.

29.1 Details of the EAP,

(Confirm that the requirement for the provision of the details and expertise of the EAP are already included in PART A, section 1(a) herein as required).

Yes. Refer Para 1.1.

29.2 Description of the Aspects of the Activity

(Confirm that the requirement to describe the aspects of the activity that are covered by the draft environmental management programme is already included in PART A, section (1)(h) herein as required).

Yes. Refer Para 4.1 and 4.2.

29.3 Composite Map

(Provide a map **(Attached as an Appendix**) at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that any areas that should be avoided, including buffers)

There is no composite map given all the environmental variables considered. The following maps in this text do however apply:
Figure 1: Locality Plan
Figure 2: Regulation 2(2) drawing of Driefontein Quarry
Figure 3: Geology Plan (as per Site Plan Consulting Report)
Figure 4: Mining Method & Overall Mine Site Layout Plan
Figure 6: Cape Agulhas Spatial Development Framework 2017-2022
Figure 7: Surrounding Landowners (Source: Cape Farm Mapper)
Figure 8: Topography of Bredasdorp Section 102 Application, Source: Cape Farm Mapper.
Figure 9: Extract of the SA Vegetation Map (Mucina & Rutherford 2012), showing that the site is within Agulhas Limestone and Agulhas Sand fynbos
Figure 10: Critical Biodiversity Area Map (source Cape Farm Mapper).
Figure 11: Section 102 Application Area surface water feature

29.4 Description of impact management objectives including management statements

29.4.1 Determination of closure objectives.

(ensure that the closure objectives are informed by the type of environment described)

The overall objective is to limit the impact of operational mining and residual post mining impacts.
The overall closure objective is to return the disturbed environment into a grazing land. Fencing will be erected to prevent trespassing into the quarry. The pit of the quarry will continue to collect rainwater which will used for birdlife as there are

currently birds breeding in the quarry pit. The rehabilitation of the quarry will entail buttress blasting of the entire bench with a rocky slope and the topsoil as well as overburden will be scarified over the sloped area.
As part of the closure objective, access road will be kept to access the quarry after closure.

29.4.2 Volumes and rate of water use required for the operation.

i. Raw water.

The only application of raw water will be in road dust control and stockpiling area surface dust generation. To further minimise water requirement for dust control, the project planning should consider:

a) The only application of raw water that will be used it is for the existing ready – mix plant, access road, haul roads and to minimize dust control at the crushing and screening plant area and stockpiling area.
b) To further limit water requirements ski-cabin chemical toilets will be provided.

ii. Potable water

The Mine Manager purchases approximately 50 Liters of bottled water per day for all the employees and anyone visiting the site.

29.4.3 Has a water use licence has been applied for?

Yes, Water Use authorization has been applied for the existing Mining Right at BGCMA, the outcome of the application was that a General Authorization for the site is not required.

30 Impacts to be mitigated in their respective phases

Measures to rehabilitate the environment affected by the undertaking of any listed activity.

Activity	Nature of Impact and extent	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
1. Application for amendment of the Mining Right area under Section 102 of the MPRDA **2. Establishment Phase**				
2.1 Demarcate new Mining Right area boundary as defined in the Regulation 2 (2) sketch plan				
2.2 Conduct Environmental Induction training to staff				
2.3 Continue use of chemical toilets in the ski-cabins				
2.3.1 Surface Water	Local	Monitor and report any leakages in the ski – cabin chemical toilets	None	LOM
2.3.2 Ground Water	Local	Monitor and report any leakages in the ski – cabin chemical toilets	None	LOM
2.4 Continue use the ready-mix plant				
2.4.1 Surface water	Local	Key production areas being surfaced with drainage / washing to a closed 2-stage water recycling system.	NA	LOM

Activity	Nature of Impact and extent	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
2.4.2 Ground water	Local	Key production areas being surfaced with drainage / washing to a closed 2-stage water recycling system. Clean water recovery to be returned to a quarry re-crushing. Removal of solid waste spillage to dry out bunker for later removal to quarry re-crushing.	NA	LOM
2.4.3 Noise	Local	The only feasible noise reduction measure is to ensure that all vehicle silencers are operational	NOISE: SANS 0103-1983 & MHSA in respect of Personnel Exposure	LOM
2.4.4 Air Quality (Dust)	Very local	- Dust suppression ring will be installed above mixer - Loading bins will be equipped with automated sprayer systems - Position bin rear walls towards prevailing winds - Dalmatic Dust Collectors (i.e. dedicated filtration / extraction units) will be fitted to each silo to limit dust impact	DUST FALL STANDARDS: SANS 1929:2004 & MHSA in respect of Personnel Exposure refer para 32.6	LOM
2.4.5 Hydrocarbon	Potential impact through oil fuel leaks at point	As per Monitoring and Hydrocarbon Management Protocols	EMP prescriptions in para 32.5	LOM

Activity	Nature of Impact and extent	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
2.4.6 Traffic Impact	Local	Traffic generated dust on unsurfaced roads surrounding site	DUST FALL STANDARDS: SANS 1929:2004 & MHSA in respect of Personnel Exposure refer para 32.6	LOM
2.5 Continuous use of logistical facilities i.e. store, personnel amenities, offices, dispatch office.				
2.5.1 Visual	Local	None	None	LOM
2.5.2 Hydrocarbon	Local	Monitor and control through hydrocarbon management protocol refer 32.5	Monitor and control through hydrocarbon management protocol refer 32.5	Monitor and control through hydrocarbon management protocol refer 32.5
2.6 Continuous use of already existing diesel tank				
2.6.1 Hydrocarbon	At point	As per Monitoring and Hydrocarbon Management Protocols	EMP prescriptions in para 32.5	LOM
2.7 Continue using the already approved haul road and access roads				
2.7.1 Noise	Local	The only feasible noise reduction measure is to ensure that all vehicle silencers are operational	NOISE: SANS 0103-1983 & MHSA in respect of Personnel Exposure	LOM

Activity	Nature of Impact and extent	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
2.7.2 Air Quality	Dust generated by earthmoving equipment	Pre-wet site haul roads and access roads	DUST FALL STANDARDS: SANS 1929:2004 & MHSA in respect of Personnel Exposure refer para 32.6	LOM
2.7.3 Hydrocarbon	Potential impact through oil fuel leaks at point	As per Monitoring and Hydrocarbon Management Protocols	EMP prescriptions in para 32.5	LOM
3 OPERATIONAL PHASE ACTIVITIES				
3.1 Remove alien trees on the extension area for the excavation area				
2.1.1 Noise	Local	- The only feasible noise reduction measure is to ensure that all vehicle silencers are operational - Pre-start checklist to be implemented	NOISE: SANS 0103-1983 & MHSA in respect of Personnel Exposure	Operational phase
2.1.2 Air Quality	Dust generated by earthmoving equipment	- Pre-wet site prior to grading - Apply dust palliative in final construction	DUST FALL STANDARDS: SANS 1929:2004 & MHSA in respect of Personnel Exposure refer para 32.6	Operational phase
2.1.3 Hydrocarbon	Potential impact through oil fuel leaks at point	As per Monitoring and Hydrocarbon Management Protocols	EMP prescriptions in para 32.5	Operational phase

Activity	Nature of Impact and extent	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
3.2 Remove any remnant indigenous vegetation and topsoil 300-500mm to topsoil berms as prescribed by the Mine Plan and EMP				
3.2.1 Vegetation	Indigenous will be removed to topsoil berm	Stockpile and monitor for erosion	NA	Operational Phase
3.2.2 Noise	Local	- The only feasible noise reduction measure is to ensure that all vehicle silencers are operational - Pre-start checklist to be implemented	NOISE: SANS 0103-1983 & MHSA in respect of Personnel Exposure	Operational Phase
3.2.3 Air Quality	Site preparation	- Pre-wet site prior to grading - Apply dust palliative in final construction.	DUST FALL STANDARDS: SANS 1929:2004 & MHSA in respect of Personnel Exposure refer para 32.6	Operational phase
3.2.4 Hydrocarbon	Potential impact through oil fuel leaks very local	As per Monitoring and Hydrocarbon Management Protocols	EMP prescriptions in para 32.5	Operational phase
3.3 Drilling and blasting				
3.3.1 Topography	Minimal topsoil removed will minimally impact topography	Stockpile topsoil and monitor erosion	None	Operational Phase

Activity	Nature of Impact and extent	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
3.3.2 Noise	Drilling and blasting activity in immediate surroundings	- Ensure the best blast design to ensure no impact on surrounding uses. - Notify surrounding land uses about planned blasting	NOISE: SANS 0103-1983 & MHSA in respect of Personnel Exposure	Operational phase
3.3.3 Air Quality (Dust)	Drill rig at point	Apply dust mitigation measures for drilling and blasting	N	Operational phase
3.3.4 Hydrocarbon	Potential impact through oil fuel leaks very local	As per Monitoring and Hydrocarbon Management Protocols	EMP prescriptions in para 32.5	Operational phase
3.4 Loading and hauling shot rock to crusher using haul road out of existing excavation.				
3.4.1 Noise	Equipment	The only feasible noise reduction measure is to ensure that all vehicle silencers are operational	NOISE: SANS 0103-1983 & MHSA in respect of Personnel Exposure	LOM
3.4.2 Air Quality (Dust)	Loading point and haul road vehicle dust	Apply dust mitigation such wetting of haul road	DUST FALL STANDARDS: SANS 1929:2004 & MHSA in respect of Personnel Exposure refer para 32.6	LOM
3.4.3 Hydrocarbon	Potential impact through oil/fuel leaks	As per Monitoring and Hydrocarbon Management Protocols	EMP prescriptions in para 32.5	LOM
3.5 Crushing and screening				

Activity	Nature of Impact and extent	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
3.5.1 Noise	Equipment	Consider enclosing primary with rubber conveyor belting	NOISE: SANS 0103-1983 & MHSA in respect of Personnel Exposure	LOM
3.5.2 Air Quality (Dust)	Crushing and screening	Install mist sprayers at the jaw of the crushing plant.	DUST FALL STANDARDS: SANS 1929:2004 & MHSA in respect of Personnel Exposure refer para 32.6	LOM
3.5.3 Hydrocarbon	Potential impact through oil/fuel leaks	As per Monitoring and Hydrocarbon Management Protocols	EMP prescriptions in para 32.5	LOM
3.6. Stockpiling at current approved stockpile areas				
3.7. Dispatch loading of delivery vehicles.				
3.7.1 Noise	Loader and delivery trucks	The only feasible noise reduction measure is to ensure that all vehicle silencers are operational	NOISE: SANS 0103-1983 & MHSA in respect of Personnel Exposure	LOM
3.7.2 Air Quality (Dust)	Blowing during loading	apply wetting to loading area and haul road	DUST FALL STANDARDS: SANS 1929:2004 & MHSA in respect of Personnel Exposure refer para 32.6	LOM
3.7.3 Hydrocarbon	Potential impact through oil/fuel leaks	As per Monitoring and Hydrocarbon Management Protocols	EMP prescriptions in para 32.5	LOM

Activity	Nature of Impact and extent	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
3.8 Conduct dust suppression on haul roads, stockpile area and plant				
3. DECOMMISSIONING PHASE ACTIVITIES				
4.1. Removed all logistical facilities and chemical toilet				
4.1.1. Noise	Noise generated by earthmoving equipment	The only feasible noise reduction measure is to ensure that all vehicle silencers are operational	NOISE: SANS 0103-1983 & MHSA in respect of Personnel Exposure	Decommissioning
4.1.2. Air Quality	Dust generated by earthmoving equipment	apply wetting to the area decommissioned	DUST FALL STANDARDS: SANS 1929:2004 & MHSA in respect of Personnel Exposure refer para 32.6	Decommissioning
4.1.3. Hydrocarbon	Potential Hydrocarbon leaks	As per Monitoring and Hydrocarbon Management Protocols	EMP prescriptions in para 32.5	Decommissioning
4.2. Finalise sloping of final pit edges				
4.2.1. Noise	Noise generated by earthmoving equipment	Ensure that all vehicle silencers are operational	NOISE: SANS 0103-1983 & MHSA in respect of Personnel Exposure	Decommissioning

Activity	Nature of Impact and extent	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
4.2.2. Air Quality	- Dust generated by earthmoving equipment - Dust generated by activities occurring when sloping	Monitor the pit area for any dust and wet the haul roads in the pit area	DUST FALL STANDARDS: SANS 1929:2004 & MHSA in respect of Personnel Exposure refer para 32.6	Decommissioning
4.2.3. Hydrocarbon	Potential Hydrocarbon leaks	As per Monitoring and Hydrocarbon Management Protocols	EMP prescriptions in para 32.5	Decommissioning
4.3. Rip/scarify hardened/compacted surface of plant and stockpiling area				
4.3.1. Noise	Noise generated by earthmoving equipment	Ensure that all vehicle silencers are operational	NOISE: SANS 0103-1983 & MHSA in respect of Personnel Exposure	Decommissioning
4.3.2. Air Quality	Dust generated by earthmoving equipment	Monitor the pit area for any dust and wet the haul roads in the pit area	DUST FALL STANDARDS: SANS 1929:2004 & MHSA in respect of Personnel Exposure refer para 32.6	Decommissioning
4.3.3. Hydrocarbon	Potential Hydrocarbon leaks	As per Monitoring and Hydrocarbon Management Protocols	EMP prescriptions in para 32.5	Decommissioning
4.4. Spread topsoil from berms over ripped area (not excavation)				
4.4.4 Noise	Noise generated by earthmoving equipment	Ensure that all vehicle silencers are operational	NOISE: SANS 0103-1983 & MHSA in respect of Personnel Exposure	Decommissioning

Activity	Nature of Impact and extent	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
4.4.2 Air Quality	Dust generated by earthmoving equipment	- Monitor dust levels in this area - Wet haul roads using water carts	DUST FALL STANDARDS: SANS 1929:2004 & MHSA in respect of Personnel Exposure refer para 32.6	Decommissioning
4.4.3 Hydrocarbon	Potential Hydrocarbon leaks	As per Monitoring and Hydrocarbon Management Protocols	EMP prescriptions in para 32.5	Decommissioning
4.5. Construct safety berm and trench around excavation perimeter and install livestock proof fence and danger signpost.				
4.5.1. Noise	Noise generated by earthmoving equipment	Ensure that all vehicle silencers are operational	NOISE: SANS 0103-1983 & MHSA in respect of Personnel Exposure	Decommissioning
4.5.2. Air Quality	Dust generated by earthmoving equipment	- During the construction of the trench ensure that dust levels are monitored - Wet haul roads using water carts	DUST FALL STANDARDS: SANS 1929:2004 & MHSA in respect of Personnel Exposure refer para 32.6	Decommissioning
4.5.3. Hydrocarbon	Potential Hydrocarbon leaks	As per Monitoring and Hydrocarbon Management Protocols	EMP prescriptions in para 32.5	Decommissioning
4.6. Grass seed re-top soiled areas.				
4.7. Either retain or remove delivery road (to landowner's decision) by scarification, top soiling and grass seeding (retain bell-mouth)				

Activity	Nature of Impact and extent	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
4.8. Conduct final Environmental Audit Report (EAR) for closure				
4.9. Apply for closure (submit closure application)				
5. AFTERCARE AND MAINTENANCE ACTIVITIES (2 YEARS)				
5.1. Monitor revegetation success and continue hand seeding when necessary annually.				

31 Impact Management Outcomes

(A description of impact management outcomes, identifying the standard of impact management required for the aspects contemplated above)

ACTIVITY whether listed or not listed and Potential Impact **1. Pre-Establishment Phase** **1.1. Application for amendment of the Mining Right area under Section 102 of the MPRDA** **2. Establishment Phase**	**MITIGATION TYPE** **(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.**	**STANDARD TO BE ACHIEVED** **(Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.**
2.1 Demarcate new Mining Right area boundary as defined in the Regulation 2 (2) sketch plan		
2.2 Conduct Environmental Induction training to staff		
2.3 Continue use of chemical toilets in the ski-cabins		
2.3.1 Surface Water	Avoid flow impedance by culvert provision	Provision of culvert
2.3.2 Groundwater	Avoid flow impedance by culvert provision	Provision of culvert
2.4 Continue to use ready-mix plant		
2.4.1 Surface Water	Key production areas being surfaced with drainage / washing to a closed 2-stage water recycling system.	Avoid unsurfaced drainages.

ACTIVITY whether listed or not listed and Potential Impact	MITIGATION TYPE (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.	STANDARD TO BE ACHIEVED (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
2.4.2 Groundwater	Key production areas being surfaced with drainage / washing to a closed 2-stage water recycling system. Clean water recovery to be returned to a quarry re-crushing. Removal of solid waste spillage to dry out bunker for later removal to quarry re-crushing.	Avoid unsurfaced drainages and ensure removal of solid waste spillage.
2.4.3 Noise	- Ensure equipment silencers are operational - Ensure silos are in a good working condition	Noise level standards not breached
2.4.4 Air Quality	- Dust suppression ring will be installed above mixer - Loading bins will be equipped with automated sprayer systems - Position bin rear walls towards prevailing winds - Dalmatic Dust Collectors (i.e. dedicated filtration / extraction units) will be fitted to each silo to limit dust impact	Dust level standard not breached
2.4.5 Hydrocarbon	Monitor and control through hydrocarbon management protocol refer 32.5	Avoidance and mitigation
2.4.6 Traffic Impact	Trucks being spray-washed prior leaving the site.	Dust level standard not breached.
3 OPERATIONAL PHASE		
3.1 Remove alien trees on the extension area for excavation extension area		

ACTIVITY whether listed or not listed and Potential Impact	MITIGATION TYPE (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.	STANDARD TO BE ACHIEVED (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
3.1.1 Noise	Ensure equipment silencers are working properly	Ensure noise threshold standards are not breached
3.2 Loading and hauling shot rock to crusher using haul road		
3.2.1 Noise	Ensure equipment silencers are operational	Noise level standards not breached
3.2.2 Air Quality (Dust)	Dust palliative and hard crushed material cover and periodic wetting of manoeuvring area	Dust level standard not breached
3.2.3 Hydrocarbon	Monitor and control through hydrocarbon management protocol refer 32.5	Avoidance and mitigation
3.3 Crushing and screening.		
3.3.1 Noise	Consider enclosing primary with rubber conveyor belting	Noise level standard not breached
3.3.2 Air Quality (Dust)	Ensure that mist sprayers are in good working condition in the primary hopper and enclosed transfer points and visually monitor plant dust under north west wind and stop plant if impact occurs	Dust level standard not breached
3.3.3 Hydrocarbon	As per Monitoring and Hydrocarbon Management Protocols refer 32.5	Avoidance and mitigation
3.4 Stockpiling at current approved stockpile areas		
3.4.1 Noise	Ensure equipment silencers are operational	Noise level standard not breached
3.4.2 Air Quality	Wet stockpiles using sprinklers	Dust level standard not breached
3.4.3 Hydrocarbon	As per Monitoring and Hydrocarbon Management Protocols refer 32.5	Avoidance and mitigation

ACTIVITY whether listed or not listed and Potential Impact	MITIGATION TYPE (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.	STANDARD TO BE ACHIEVED (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
3.5 Dispatch loading of delivery vehicles.		
3.5.1 Noise	Ensure equipment silencers are operational	Noise level standards not breached
3.5.2 Air Quality (Dust)	Dust palliative and hard crushed material cover and periodic wetting of manoeuvring area	Dust level standard not breached
3.5.3 Hydrocarbon	Monitor and control through hydrocarbon management protocol refer 32.5	Avoidance and mitigation
3.6 Delivery along delivery route		
3.6.1 Air Quality (Dust)	Manage through wetting of road and covering of loads	Dust level standard not breached
3.7 Conduct dust suppression on haul roads and plant.		
3.8 Refuelling and hydrocarbon management.		
4 DECOMMISSIONING PHASE		
4.1 Remove all plant, structures and logistical facilities.		
4.1.1 Noise	Ensure equipment silencers are operational	Noise level standards not breached
4.1.2 Air Quality (Dust)	Control through dust measures	Dust level standard not breached
4.1.3 Hydrocarbon	Control and monitor through hydrocarbon management protocol refer 32.5	Avoidance and mitigation
4.2 Finalise sloping of final pit edges		
4.2.1 Noise	Ensure equipment silencers are operational	Noise level standards not breached

ACTIVITY whether listed or not listed and Potential Impact	MITIGATION TYPE (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.	STANDARD TO BE ACHIEVED (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
4.2.2 Air Quality (Dust)	Control through dust measures	Dust level standard not breached
4.2.3 Hydrocarbon	Control and monitor through hydrocarbon management protocol refer 32.5	Avoidance and mitigation
4.3 Rip/scarify hardened/compacted surface of plant and stockpiling area.		
4.3.1 Noise	Ensure equipment silencers are operational	Noise level standards not breached
4.3.2 Air Quality (Dust)	Control through dust control measures (para)	Dust level standard not breached
4.3.3 Hydrocarbon	Control and monitor through hydrocarbon management protocol refer 32.5	Avoidance and mitigation
4.4 Spread topsoil from berms over ripped area (not excavation)		
4.4.1 Noise	Ensure equipment silencers are operational	Noise level standards not breached
4.4.2 Air Quality (Dust)	Control through dust control measures (para)	Dust level standard not breached
4.4.3 Hydrocarbon	Control and monitor through hydrocarbon management protocol refer 32.5	Avoidance and mitigation
4.5 Construct safety berm and trench around excavation perimeter and install livestock proof fence and danger signpost.		
4.5.1 Noise	Ensure equipment silencers are operational	Noise level standards not breached
4.5.2 Air Quality (Dust)	Control through dust control measures (para)	Dust level standard not breached

ACTIVITY whether listed or not listed and Potential Impact	MITIGATION TYPE (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.	STANDARD TO BE ACHIEVED (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
4.5.3 Hydrocarbon	Control and monitor through hydrocarbon management protocol refer 32.5	Avoidance and mitigation
4.6 Grass seed re-top soiled areas.		
4.7 Either retain or remove delivery road (to landowner's decision) by scarification, top soiling and grass seeding (retain bell-mouth)		
4.8 Conduct final Environmental Audit Report (EAR) for closure		
4.9 Apply for closure (submit closure application)		
5 Aftercare Period		
1.1 Monitor revegetation success, with follow-up seeding if required. Allow natural re-seeding by windblown seed following aftercare period.		

32 Impact Management Actions

(A description of impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated above will be achieved).

As the quarry is already operational and this being virtually an extension of the existing excavation area, this section must be read within the context that some of these management aspects are already taking place and will continue to be undertaken to maintain the current management measures in place which have been Adequate as confirmed by Environmental Audit reports submitted to the competent authority DMRE. The following sections below describe the Impact Management actions currently undertaken or to be undertaken to ensure that adverse impacts are management.

32.1 Demarcation of Activity areas: Demarcation of No-Go areas and No-Go area Management

Beacons must be securely placed to demarcate the Mining Right extension area. These beacons must be visible from one another. Employees /operators must be informed of this maximum extent and absolutely no access is permitted beyond these beacons. The no go areas must form part of the Environmental Induction Training (which forms part of the Environmental Awareness Programme refer Appendix 5).

32.2 Topsoil Handling Methodology

The management of topsoil is of utmost importance. Without topsoil management, the disturbed area is subject to several other potential long-term impacts such as lack of revegetation or extended revegetation time, dust generated off denuded areas and potential visual scarring. Given the locality of this operation within a CBA, it is of utmost importance that all topsoil return is maximized to enable the eventual rehabilitation /restoration of all areas. Topsoil in the extension area ranges from 200-400mm in depth.

Topsoil removal

Topsoil removal will take place as follows:

- The topsoil in all virgin disturbance areas shall be removed to between 200 and 400mm depending on the soil horizon for storage and reuse
- All dozed or graded topsoil shall be stored in adjacent perimeter topsoil berms not exceeding 1.5m in height to retain aeration of such soil for the seed bank preservation

Topsoil reuse

Majority of topsoil reuse will table place duding decommissioning phase of the mining project. Therefore, topsoil reuse will be conducted as follows:

- Topsoil/subsoil combination in the excavation perimeter berms will be spread over the 3m wide upper safety bench to provide growing medium. The remaining portion of the berm will be retained as a safety berm with both the top soiled and retained areas being hand seeded with selected indigenous species seed.
- Any other remaining topsoil will be hauled and use in rehabilitation of the stockpile areas, plant area and logistical areas as per the need requirements.

32.3 Vegetation and Animal life protocol Methodology

Vegetation in this application area is described as Agulhas Sand Fynbos and Agulhas Limestone Fynbos vegetation types (Mucina and Rutherford, 2012). However, as revealed by the site visit and Site Verification report, the application area is heavily infested by alien plants particularly Port Jackson. Based on the current status of the site, vegetation impact on indigenous vegetation is expected to be insignificant compared to current alien infestation.

Vegetation management: in this site should entail the following to ensure that revegetation can have an improved success rate:

- Remove topsoil and/or seedbearing plant material from the fynbos-covered areas perimeter topsoil berms for use in the rehabilitation of disturbed areas after mining.
- Cuttings from plants can also collected, but advice should rather be sought from a restoration specialist in this regard.
- It is recommended that seed be collected from at least four indigenous pioneer species on site. This seed must be stored in a suitable, dry dark storage facility and be re-sown (raked) into the topsoil as part of the rehabilitation process following mining closure
- Engage in periodic alien clearing, focussing on invasive species such as port jackson (Acacia saligna), blackwood (A. melanoxylon) and gums.
- Allow at least 12 months for the monitoring of rehabilitation success and alien infestation post mining.

Animal Management: Vast expanses of the same vegetation which surround the site provide a habitat suitable for species typical of the area. The large scale of the habitat type when compared to the extent of the proposed activities negates any significance of any impact in this regard. Thus, a “chase and rescue” operation before a new area is established would be adequate to limit adverse impact.

32.4 Excavation perimeter shaping and rehabilitation

Rehabilitation shaping and re-top soiling of all disturbance areas will be conducted post-mining. At final closure of the quarry, the following activities will have to be undertaken to ensure that adequate rehabilitation takes place:

- Perimeter berm of 0.5m height and where possible 0,5m deep trench,
- Upper safety bench of maximum 3m height, minimum 5m width
- Lower bench faces at 18° from vertical, 11m maximal height, and 5m width
- Excavation perimeter to be subject to buttress blasting to break up edges and allow formation of naturalistic cliff-face habitats (The entire first bench will be blasted at a slope to create a scree slope).
- A fence around the excavation should be considered at closure as further safety measure.

32.5 Domestic and Industrial Waste and Hydrocarbon Management Protocol

Domestic Waste handling

At present, there are two waste bins on site for domestic waste. The bins used need to be labelled according to each waste stream. 1 x Additional waste bins will be placed at the ready -mix plant. Currently, the domestic waste produced on site is transported to the Municipality's landfill site.

Sewage handling

Presently, there are ski cabin toilets on site. This ablution facility should be well maintained and is to be serviced regularly under contract. No use of the veld for ablutions is permitted and staff should be strongly cautioned in this regard.

Industrial Waste handling

Industrial waste on site is stored in oil drums for collection by the Afrimat Worcester team and then be disposed of at an appropriate waste disposal facility. Employees are to be made aware of the industrial waste disposal procedure regularly.

Hydrocarbon Management

Fuel is currently stored in a bunded diesel tank with a carrying capacity of 110% (See photo 7 below). Inside the bunded diesel tank there is also a fuel pump. The diesel tank is now having its concrete apron upgraded for adequate fuel management. The site also has a diesel treatment product from Spill Tech which is kept at the Workshop at all times.

Photo 7:Steel bunded diesel tank with a carrying capacity of 110%

a) *Vehicle /pump leaks:*
Vehicles and equipment are to be checked on a daily basis for oil/diesel/hydraulic fluid leaks on a daily basis. Drip trays must be available on site and should any oil/fuel/lubricant leak from the equipment. All used or leaked fluid is to collected using drums for transport to Afrimat' Worcester Workshop from which it will be disposed of at a registered site.

b) *On-site repairs:*
All repairs minor repairs are done at the workshop on site and major repairs are conducted by the Afrimat's Worcester Workshop.

c) *Emergency repairs on site:*
In the event of a breakdown repair being required on site, the staff are trained and will again be instructed during environmental induction training (Appendix 5) in the use of drip trays and suitable funnels (not to drain oil into the sand) for filling and draining of lubricants and the staff shall be provided with such

equipment to prevent oil contamination.

d) *Reporting of an incident:*
In the event of large spillages, the Mine Manager will be informed and the relevant authorities will be informed as such the spill will be investigated to find ways to avoid having another spill occurring.

e) *General hydrocarbon management protocol:*
- All operation equipment should be checked daily every morning before work commences.
- No used oils should be used as dust suppressants on manoeuvring areas.
- If spills do occur on the sand, the spill kit should be used to remove the spill and will be placed hazardous waste drums and then collected by Afrimat Worcester site for disposal in a suitable landfill site.
- All contaminated soil/material must also be removed and disposed of or treated with a suitable treatment process.
- There will be an incident management system, including procedures and training, for dealing with incidents.
- Used oil drums are to be suitably sealed and sited within bund trays to prevent spillage.
- Should any pollution of water resources be detected during the mining operation, the Department of Water and Sanitation must be informed immediately and appropriate remediation processes must take place in consultation with Department of Water and Sanitation.

32.6 Dust management protocol

The current Driefontein existing site, the dust is constantly monitored to be able to detect the fallout dust levels ad this is done through external consultants. It is important that dust levels are monitored, reported on and understood that so that if allowed amount of dust levels has been exceeded it can be detected and eliminated at source.

Currently, dust sources on site are:

i. Limited drilling dust as the drill rigs employed are all fitted with dust extraction systems
ii. Haul road dust from the haul vehicle tyre powdering of haul road surface
iii. Haul vehicle tipping into primary crusher hopper
iv. Crushing and screening
v. Stockpiling and stockpile dispatch loading
vi. Delivery vehicle road dust
vii. Delivery vehicle load if uncovered
viii. Cement unloading into silos.
ix. Vehicle movement on site.
x. Aggregate bins
xi. Truck loading from the loading bin

As the above sources are common to all hard rock quarrying sites, the quarry industry has developed appropriate dust attenuation measures which include:

i. Prescription of dust extraction systems on drills

ii. Water cart wetting of haul roads with consideration of armouring such roads in fresh crushed hard material to limit powdering of haul road surfaces
iii. Dozing of topsoil and overburden on wind-still days
iv. Shade cloth surrounding of the tipping into primary hopper
v. Enclosing material transfer points on the plant
vi. Covering delivery vehicle loads
vii. Movement of trucks to be controlled
viii. The extension area will have the same impacts as current activities.

The measures will be continue to be used.

32.7 Drilling and blasting management

Blasting may impact farmstead that is about 700m northwest of the Mining Right extension area. However, to date no blasting impacts have been reported by the landowner and should correct blasting designs be maintained as is the case then impact should remain negligible.

Consequently, the following measures are prescribed to limit blasting impact (ground vibration and noise):

a) The mine manager must notify the landowner of the intended date and times of the next blast in order that the residents and personnel outside the danger area can expect the blast, and
b) All personnel must avoid entering the danger radius during the period of the blast.
c) the blasting engineer shall design the blast so that ground vibration does not cause significant vibrations.

In accordance with the blasting code:

i. The blaster shall drive along the perimeter fences to inspect the adjacent lands to ensure that there are no persons or livestock within the blast radius.
ii. a hooter/siren will alert all persons in proximity of the pending blast.

32.8 Aquatic biodiversity impact management

As specialist aquatic biodiversity study was commissioned (refer Appendix 6). The specialist identified 3 main impact that are likely to result from the mining right extension application as follows:

Biodiversity Assessment Protocol Impacts found applicable to this project	**Impacts assessed in this report below**
Faunal and vegetation communities inhabiting the site	Impact 1
Changes in numbers and density of species	Impact 1
Water quality changes (increase in sediment, organic loads, chemicals or eutrophication)	Impact 2
Cumulative Impacts	Impact 3

These impact above were then assessed and mitigation measures were prescribed as per Section 9 of the specialist report. Importantly, all the recommended mitigation measures determined that after mitigation, the impact would be low.

"Table 7: Impact assessment for disturbance of wetland habitat and biota.
Recommended mitigation measures:

- *To prevent impacting upon HGM1, an aquatic buffer zone of 35m (minimum) should be applied from any remaining aquatic habitat on the Droe River. The proposed buffer must be adopted as a No-Go Zone for any activities excepting alien plant removal.*
- *To minimize impacts upon HGM2, where possible, quarry operations within the pit should work on one face at a time, to allow for any aquatic fauna to move and seek refuge in another wet area of the pit.*
- *During site preparation (before blasting etc.) near the artificial wetland areas in the pit, should any nests or aquatic fauna need to be moved, CapeNature must be consulted to advise, and assist if needed.*
- *Any fauna (frogs, snakes, fledglings, etc.) that are found within the working area must be moved to the closest point of similar habitat type outside of the areas to be impacted, ideally into the Droe River corridor.*
- *Removed wetland vegetation and soils can be transplanted in other areas of the pit to aid rehabilitation as work progresses.*
- *During decommissioning, the banks should be sloped/terraced and stabilized. Any deep excavation areas in the pit can be infilled to promote a shallow waterbody*."

Table 8: Impact assessment for localised changes to surface water quality
Recommended mitigation measures:

- *Prevent any potential sources of pollution from entering the surrounding environment (e.g. litter, hydrocarbons from vehicles & machinery, etc.) and any solid domestic waste must be removed and disposed of offsite. Vehicles must be maintained to prevent leaks.*
- *No surface runoff from the excavation area should not be directed into the surrounding environment. Measures, such as a low contour berm, can be installed outside of the disturbance area, to capture sediment and promote infiltration before leaving the mining right area. Remove any accumulated sediment deposited after heavy rainfall events and maintain the berm.*
- *Where possible, topsoil removed during the mining phase must be conserved and used in the rehabilitation. It can potentially be used to create the stormwater berms and then replaced following decommissioning.*
- *Compliance with the mitigation recommendations must be audited by a suitably qualified independent Environmental Control Officer with an appropriately timed audit report. Monitoring for non-compliance must be done on a daily basis by the mine managers."*

Table 9: Impact assessment for cumulative impacts
Recommended mitigation measures:

- *Improved land management, including alien tree removal, the rehabilitation of indigenous vegetation, and including conservation objectives into the end land use plan.*
- *Groundwater monitoring"*

33 Financial Provision

33.1 Describe the closure objectives and the extent to which they have been aligned to the baseline environment described under the Regulation.

The closure objectives for decommissioning are specified in para 29.4.1 and accordingly the calculation of the financial provision provides for achieving such closure objectives and implementing the decommissioning rehabilitation.

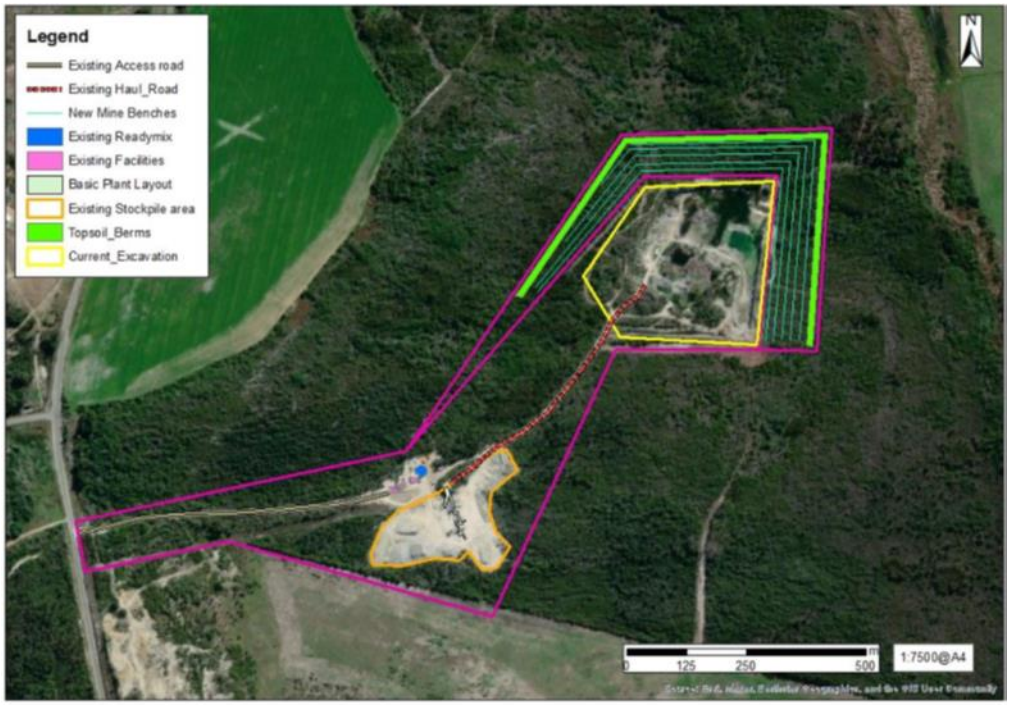
33.2 Confirm specifically that the environmental objectives in relation to closure have been consulted with landowner and I&AP's.

This draft document is circulated as the basis of comment from the landowner and the I&APs.

33.3 Provide a rehabilitation plan that describes and shows the scale and aerial extent of the main mining activities, including the anticipated mining area at the time of closure.

As stated in the closure activities in section 29.4.1, The overall closure objective is to return the disturbed environment into a grazing land as there is a lot of farming activity taking place in this area while enabling the landowner/ other people to further reuse the disturbed area. Fencing will be erected to prevent trespassing into the quarry. The pit of the quarry will continue to collect rainwater which will be used for birdlife as there are currently birds breeding in the quarry pit. The rehabilitation of the quarry will entail buttress blasting of the entire bench with a rocky slope and the topsoil as well as overburden will be scarified over the sloped area.

As part of the closure objective one access road will be kept to access the quarry after closure.



The following activities constitute decommissioning rehabilitation of the quarry:

- Removed all logistical facilities and ski cabin chemical toilets
- Finalise sloping of final pit edges
- Rip/scarify hardened/compacted surface of plant and stockpiling area.
- Spread topsoil from berms over ripped area (not excavation)
- Construct safety berm and trench around excavation perimeter and install livestock proof fence and danger signpost.
- Grass seed re-top soiled areas.
- Either retain or remove delivery road (to landowner's

- decision) by scarification, top soiling and grass seeding (retain bell-mouth)
- Conduct final Environmental Audit Report (EAR) for closure
- Apply for closure (submit closure application)
- Aftercare and maintenance activities (2 years)
- Monitor revegetation success and continue hand seeding when necessary, annually.

33.4 Explain why it can be confirmed that the rehabilitation plan is compatible with the closure objectives.

Refer section 33.3 above.

33.5 Calculate and state the quantum of the financial provision required to manage and rehabilitate the environment.

A site specific and site condition of the DMRE template adaptation for calculating the Quantum for Financial Provision and the resultant table is as shown below.

The **R511 275.72** amount calculated once it has been approved by the DMRE it will be added to the existing financial guarantee which is updated annually.

CALCULATION OF THE QUANTUM

Applicant:	Afrimat Aggregates Operations (Pty) Ltd	Location:	Bredasdorp
Evaluator:	Siphumelelo Mbali	Date:	Dec 2022
Reference:	WC 30/5/1/2/2/ 134MR		

Environmental Parameters

Risk Class	C
Area sensitivity	Medium
Nature of terrain	Flat
Proximity to Urban Ara	Urban

No.	Description	Unit	A Quantity	B Master Rate	C Multiplication factor	D Weighting factor 1	E=A*B*C*D Amount (Rands)
1	Dismantling of processing plant and related structures (including overland conveyors and pow erlines)	m3	0	R 6.82	1	1	R 0.00
2 (A)	Demolition of steel buildings and structures	m2	0	R 95.00	1	1	R 0.00
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	R 140.00	1	1	R 0.00
3	Rehabilitation of access roads	m2	0	R 17.00	0.5	1	R 0.00
4 (A)	Demolition and rehabilitation of electrified railw ay lines	m	0	R 165.00	1	1	R 0.00
4 (B)	Demolition and rehabilitation of non-electrified railw ay lines	m	0	R 90.00	1	1	R 0.00
5	Demolition of housing and/or administration facilities	m2	0	R 190.00	1	1	R 0.00
6	Opencast rehabilitation including final voids and ramps	ha	0	R 96 700.00	0.52	1	R 0.00
7	Sealing of shafts adits and inclines	m3	0	R 51.00	1	1	R 0.00
8 (A)	Rehabilitation of overburden and spoils	ha	0	R 66 400.00	1	1	R 0.00
8 (B)	Rehabilitation of processing w aste deposits and evaporation ponds (non-polluting potential)	ha	0	R 82 700.00	1	1	R 0.00
8 (C)	Rehabilitation of processing w aste deposits and evaporation ponds (polluting potential)	ha	0	R 240 200.00	0.66	1	R 0.00
9	Rehabilitation of subsided areas	ha	0	R 55 600.00	1	1	R 0.00
10	General surface rehabilitation	ha	11.6759	R 52 600.00	0.5	1	R 307 076.17
11	River diversions	ha	0	R 52 600.00	1	1	R 0.00
12	Fencing	m	0	R 60.00	1	1	R 0.00
13	Water management	ha	0	R 20 000.00	0.25	1	R 0.00
14	maintenance and aftercare	ha	0	R 7 000.00	1	1	R 0.00
15 (A)	Specialist study	Sum	1	R 28 669.94	1	1	R 28 669.94
15 (B)	Specialist study	Sum	1	R 28 669.94	1	1	R 28 669.94
					Sub Total 1		R 364 416.05
1	Preliminary and General		R 43 729.93		weighting factor 2 1		R 43 729.93
2	Contingencies		R 36 441.60				R 36 441.60
					Subtotal 2		R 444 587.58
					VAT (15%)		R 66 688.14
					Grand Total		R 511 275.72

33.6 Confirm that the financial provision will be provided as determined.

The quantum must be approved by the DMR after which the applicant will provide for the quantum by way of bank guarantee.

34 Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon, including

a) Monitoring of Impact Management Actions
b) Monitoring and reporting frequency
c) Responsible persons
d) Time period for implementing impact management actions
e) Mechanism for monitoring compliance

Source activity and aspect requiring monitoring	Functional requirements for monitoring	Roles and responsibilities for the execution of the monitoring programmes	Monitoring and reporting frequency and time periods for implementing impact management actions
1. Application for amendment of the Mining Right area under Section 102			
2.1. Demarcate new Mining Right area boundary as defined in the Regulation 2 (2) sketch plan			
2.2. Conduct Environmental Induction training to staff			
2.3. Continue use of chemical toilets in the ski-cabins			
2.3.1 Surface Water	Continuous monitoring of potential leaks	Establishment contractor, Manager, Operator	Continuously. If leaks are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
2.3.2 Groundwater	Ensure that there are no leaks in the chemical toilets	Establishment contractor, Manager, Operator	Continuously. If leaks are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
2.4 Continue to use ready-mix plant			
2.4.1 Surface Water	A closed water management system will be implemented on site, preventing any processed concrete or contaminated water from leaving the site.	Manager, ECO, Supervisor, Operator	Continuously. If surface water run off spillages are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.

Source activity and aspect requiring monitoring	Functional requirements for monitoring	Roles and responsibilities for the execution of the monitoring programmes	Monitoring and reporting frequency and time periods for implementing impact management actions
2.4.2 Groundwater	- Wash water from trucks and machinery will be diverted to a material wash-out and dry-out bunker with appropriate drainage and water recycling. - A closed water management system will be implemented on site, preventing any processed concrete or contaminated water from leaving the site.	Manager, ECO, Supervisor, Operator	Continuously. If groundwater contamination is noted then operators and supervisors to be informed and appropriate action to be taken immediately.
2.4.3 Noise	- Ensure vehicle silencers are in place. No work or heavy vehicle movement after working hours and on weekends - Ensure that the silos during concrete batching are in good working condition.	Manager, ECO, Supervisor, Operator	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
2.4.4 Air Quality	- Equip all bins with automated sprayer systems which operate during dust generating periods, if deemed necessary. - Dust suppression ring to be installed above mixer truck loading area - Equip all bins with automated sprayer systems. - Position bin rear walls towards prevailing winds. - Dalmatic Dust Collectors (i.e. dedicated filtration / extraction units) will be fitted to each silo to limit dust impact	Manager, ECO, & Supervisor	Continuously. If dust levels have been reached beyond the accepted maximum level then appropriate action must be taken.
2.4.5 Hydrocarbon	- Ensure no vehicle or equipment leaks. - Ensure that when vehicles are stationery drip trays are used.	Manager, ECO, Supervisor, Operator	Continuously. If equipment leaks are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
2.4.6 Traffic Impact	Monitor vehicle movement on site and pre-wet the haul road especially on dry, windy conditions.	Manager, ECO, Supervisor	Continuous. Monitor the number of vehicles expected in and out of the plant.

Source activity and aspect requiring monitoring	Functional requirements for monitoring	Roles and responsibilities for the execution of the monitoring programmes	Monitoring and reporting frequency and time periods for implementing impact management actions
2.5 Continue use of logistical facilities i.e. stores, personnel amnesties, office, dispatch office etc			
2.6 Continue using the already in place diesel tank			
2.7 Continue using the already approved haul road and access roads			
3.1 Remove alien trees on the extension area for excavation extension area			
3.1.1 Noise	Ensure vehicle silencers are in place. No work or heavy vehicle movement after working hours and on weekends	Mine manager, Operators	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
3.1.2 Air Quality	Visual monitoring of dust direction (and volume)	Mine manager/operators	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
31.1.1 Hydrocarbon	Ensure no vehicle or equipment leaks. Ensure that all fuel transfer equipment is correct and present.	Establishment contractor, Manager, Operator	Continuously. If equipment leaks are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
3.2 Remove any remnant indigenous vegetation and topsoil 300-500mm to topsoil berms as prescribed by the Mine Plan and EMP			
3.2.1 Vegetation	Ensure that indigenous vegetation removed to the topsoil berms is monitored for erosion.	Mine Managers, Operators, General Workers	Continuously. If erosion is noted, supervisor and mine manager to be informed and action to be taken immediately.
3.2.2 Noise	Ensure vehicle silencers are in place. No work or heavy vehicle movement after working hours and on weekends	Mine manager/ Operators	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
3.2.3 Air Quality	Continuous monitoring of dust and direction it is generating from (and volume)	Mine manager/ Operators	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.

Source activity and aspect requiring monitoring	Functional requirements for monitoring	Roles and responsibilities for the execution of the monitoring programmes	Monitoring and reporting frequency and time periods for implementing impact management actions
3.2.4 Hydrocarbon	Ensure no vehicle or equipment leaks. Ensure that all fuel transfer equipment is correct and present.	Manager, Operator	Continuously. If equipment leaks are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
3.3 Drilling and blasting			
3.3.1 Topography	Topography will be changed as part of the excavation	Mine manager/ Operators	Managed through rehabilitation at closure
3.3.2 Noise	- Install blast vibrio recorder for blast vibration and noise level recorder during each blast - Ensure vehicle silencers are in place. No work or heavy vehicle movement after working hours and on weekends - Ensure that operators wear earplugs - Ensure that there is a pre-start checklist	Mine manager/ Safety Rep/ Operators	Per each drilling and blast
3.3.3 Air Quality	Ensure drill rig has a properly working dust extractor systems	Ensure the best blast design to ensure no impact on surrounding uses. Notify surrounding land uses about planned blasting	Per each drilling and blast
3.3.4 Hydrocarbon	- Ensure no vehicle or equipment leaks. - Ensure that all fuel transfer equipment is correct and present. - Ensure that drip trays are used when vehicles are stationery	Mine Manager, Operators	Per each drilling and blast
3.4 Loading and hauling shot rock to existing crusher using haul road			
3.4.1 Noise	Ensure vehicle silencers are in place. No work or heavy vehicle movement after working hours and on weekends	Operators and Mine manager	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
3.4.2 Air Quality (Dust)	Wet the haul road using water cart truck on an ongoing basis	Operators and mine manager	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
3.4.3 Hydrocarbon	Ensure no vehicle or equipment leaks.	Mine Manager, Operators	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.

Source activity and aspect requiring monitoring	Functional requirements for monitoring	Roles and responsibilities for the execution of the monitoring programmes	Monitoring and reporting frequency and time periods for implementing impact management actions
3.5 Crushing and screening			
3.5.1 Noise	Continuous check that ear plugs are being worn by the operator (noise level monitoring will be periodically done in terms of the health act)	Operators, Supervisor and Mine manager	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
3.5.2 Air Quality	1) Visual monitoring of dust direction (and volume) 2) Continuous dust monitoring system to monitor dust levels 3) During high wind periods, the wind coming from the easterly side must be observed.	Supervisor/ECO/ Mine manager	Continuously. If shortcomings are noted in the dust fall monitoring report then operators and supervisors to be informed and appropriate action to be taken immediately.
3.5.2 Hydrocarbon	- Continue with the pre-start up inspection - Ensure no equipment leaks. - Ensure that all fuel transfer equipment is correct and present.	Operator/Supervisor/Mine Manager	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
3.6 Stockpiling at current approved stockpile areas			
3.6.1 Noise	Ensure vehicle silencers are in place. No work or heavy vehicle movement after working hours and on weekends	Operators and Mine manager	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
3.6.2 Air Quality	Wet the haul road using water cart truck on an ongoing basis	Operators and mine manager	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
3.6.3 Hydrocarbon	Ensure no vehicle or equipment leaks.	Mine Manager, Operators	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
3.7. Dispatch loading of delivery vehicles.			
3.7.1 Noise	- Inspect vehicles if silencers are in place.	Operators, Supervisors, Safety Reps and Mine manager	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.

Source activity and aspect requiring monitoring	Functional requirements for monitoring	Roles and responsibilities for the execution of the monitoring programmes	Monitoring and reporting frequency and time periods for implementing impact management actions
3.7.2 Air Quality (Dust)	- Monitor if loads are covered when vehicles are leaving site. - Wet haul roads and access road to R319.	Operators and mine manager	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
3.7.3 Hydrocarbon	- Inspect vehicles if silencers are in place. - Inspect the vehicles for any leaks - Check if they have drip trays when vehicles are stationery	Operators, Supervisors, Safety Reps and Mine manager	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
3.8. Conduct dust suppression on haul roads, stockpile area and plant			
4. DECOMMISSIONING PHASE ACTIVITIES			
4.1. Removed all logistical facilities and chemical toilet			
4.1.1 Noise	Ensure vehicle silencers are in place. No work or heavy vehicle movement after working hours and on weekends	Operators and Mine manager	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
4.1.2 Air Quality	Monitor	Operators and mine manager	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
4.1.3 Hydrocarbon	Ensure no vehicle or equipment leaks. Ensure that all fuel transfer equipment is correct and present.	Mine Manager, Operators	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
4.2 Finalize sloping of final pit edges			
4.2.1 Noise	Ensure vehicle silencers are in place.	Operators and Mine manager	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
4.2.2 Air Quality	Visual monitoring of dust direction (and volume)	Operators and mine manager	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.

Source activity and aspect requiring monitoring	Functional requirements for monitoring	Roles and responsibilities for the execution of the monitoring programmes	Monitoring and reporting frequency and time periods for implementing impact management actions
4.2.3 Hydrocarbon	Ensure no vehicle or equipment leaks.	Operator and Mine Manager	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
4.3 Rip/scarify hardened/compacted surface of plant and stockpiling area.			
4.3.1 Noise	Ensure vehicle silencers are in place.	Operators and Mine manager	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
4.3.2 Air Quality	Monitor dust levels	Operators and mine manager	Continuously. Monitor dust levels.
4.3.3 Hydrocarbon	Ensure no vehicle or equipment leaks.	Operator and Mine Manager	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
4.4. Spread topsoil from berms over ripped area (not excavation)			
4.4.1 Noise	Ensure vehicle silencers are in place.	Operators and Mine manager	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
4.4.2 Air Quality	Monitor dust levels	Operators and mine manager	Continuously. Monitor dust levels.
4.4.3 Hydrocarbon	Ensure no vehicle or equipment leaks.	Operator and Mine Manager	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
4.5 Construct safety berm and trench around excavation perimeter when needed			
4.5.1 Noise	Ensure vehicle silencers are in place.	Operators and Mine manager	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
4.5.2 Air Quality	Wet haul road for dust control	Operators and mine manager	Continuously. Monitor dust levels.

Source activity and aspect requiring monitoring	Functional requirements for monitoring	Roles and responsibilities for the execution of the monitoring programmes	Monitoring and reporting frequency and time periods for implementing impact management actions
4.5.3 Hydrocarbon	Ensure no vehicle or equipment leaks.	Operator and Mine Manager	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
4.6 Grass seed re-top soiled areas.			
4.7 Either retain or remove delivery road (to landowner's decision) by scarification, top soiling and grass seeding (retain bell-mouth)			
4.8 Conduct final Environmental Audit Report (EAR) for closure			
4.9 Apply for closure (submit closure application)			
5.AFTERCARE AND MAINTENANCE ACTIVITIES (2 YEARS)			
5.1 Monitor revegetation success and continue hand seeding when necessary annually.			

35 Indicate the frequency of the submission of the performance assessment/ environmental audit report.

Environmental audit report to be submitted on following milestones:

a) This is an already existing mine as such EAR is compiled biennially and submitted to the DMRE
b) Just prior to decommissioning rehabilitation
c) As part of closure application

36 Environmental Awareness Plan

36.1 Manner in which the applicant intends to inform his or her employees of any environmental risk which may result from their work.

The Applicant will implement a monthly staff meeting to present the environmental awareness element of the induction training course and any further environmental awareness courses prepared for their employees inclusive of environmental risk management (refer Appendix 5) and relevant contents of this EMP.

36.2 Manner in which risks will be dealt with in order to avoid pollution or the degradation of the environment.

Refer proposed course documentation in Appendix 5 and relevant contents of this EMP.

37 Specific information required by the Competent Authority

The following reporting must take place:

1) Annual update of the Rehabilitation fund quantum calculation (on the anniversary of the last one)
2) Performance Assessment Report as per Para 35 (despite legal requirement for once every 2 years)

38 UNDERTAKING

The EAP herewith confirms

a) the correctness of the information provided in the reports

b) the inclusion of comments and inputs from stakeholders and I&APs

c) the inclusion of inputs and recommendations from the specialist reports where relevant; and

d) that the information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties are correctly reflected herein.

Signature of the EAP
DATE: 30/01/2023