mineral resources
Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

Beaufort West 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 Contracting International (Pty) Ltd**
TEL NO:	**021 917 8840**
FAX NO:	**NA**
POSTAL ADDRESS:	**Tygervalley Office Park No.2, Cnr Willie Van Schoor and Old Oak Road, Bellville, 7530, Western Cape**
PHYSICAL ADDRESS:	**PO Box 5278, Tygervalley, Bellville 7530, Western Cape**
FILE REFERENCE NUMBER SAMRAD:	**WC 30/5/1/3/2/10289 MP**

December 2021
Report #: Beaufort West/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
Tel No.:	021 917 8840
Cell:	063 409 4998
Fax No. :	NA
E-mail address:	Siphumelelo.mbali@afrimat.co.za

Siphumelelo Mbali was assigned the lead Environmental Practitioner to undertake the necessary environmental authorisation process and she is currently employed by Afrimat Shared Services (Pty) Ltd. Siphumelelo Mbali completed his Masters (Cum Laude): Environmental Water and Sciences in mountain catchment hydrology from the University of the Western Cape. Siphumelelo has 6 years of Environmental assessment and management including compiling BARs, EIA-EMPs, Environmental Audit Reporting, Closure Applications within mining sector.

Siphumelelo is currently employed as Environmental Specialist for Afrimat within the western and eastern cape regions under Afrimat Shared Services (Pty) Ltd. His tasks amongst other functions includes compiling Environmental Audit and Monitoring Reports for all Afrimat quarries in the Western and Eastern Cape, as well as financial quantum determinations.

1.2 Details of the EAP (independent Reviewer)

Victor Manavhela
Biogeotech Environmental Consultance
01 Goldengroove
Cnr Oosthuizen and Leiphodt
Germiston
1401
Cell: 072 130 2832
E-mail: vmanavhela@biogeotech.co.za

Please see attached letter in Appendix 1 confirming independent review of the report.

1.3 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:	**Erf 1019, Beaufort West,**
Application area (Ha)	**4.8749ha**
Magisterial district:	**Beaufort West**
Distance and direction from nearest town:	**The site is 200m from Beaufort West water supply plant**
21 digit Surveyor General Code for each farm portion:	**C00900010000101900000**
Locality map	**Attach a locality map at a scale not smaller than 1:250000 (Fig 1)**
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)	Afrimat Contracting International (Pty) Ltd is applying for a mining permit to mine 4.8749ha of Portion Erf 1019 located within Beaufort West Municipality , Western Cape Province. This is an open cast operation on a previously used quarry. The material which will be mined is rock which is suitable aggregate such as sub-base and base gravel road wearing roads provide concrete for wind turbine bases. Mining method will basically be drilling and blast and loading and hauling to mobile crushing and screening plant and delivery of product to windfarm projects envisaged for the area. Water trucks will be used to suppress dust generated during the quarrying process. Water supply shall be sourced by the client prior to operation and should a water use license/general authorisation be required the applicant follow the required process. Potable water will daily be transported to site 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

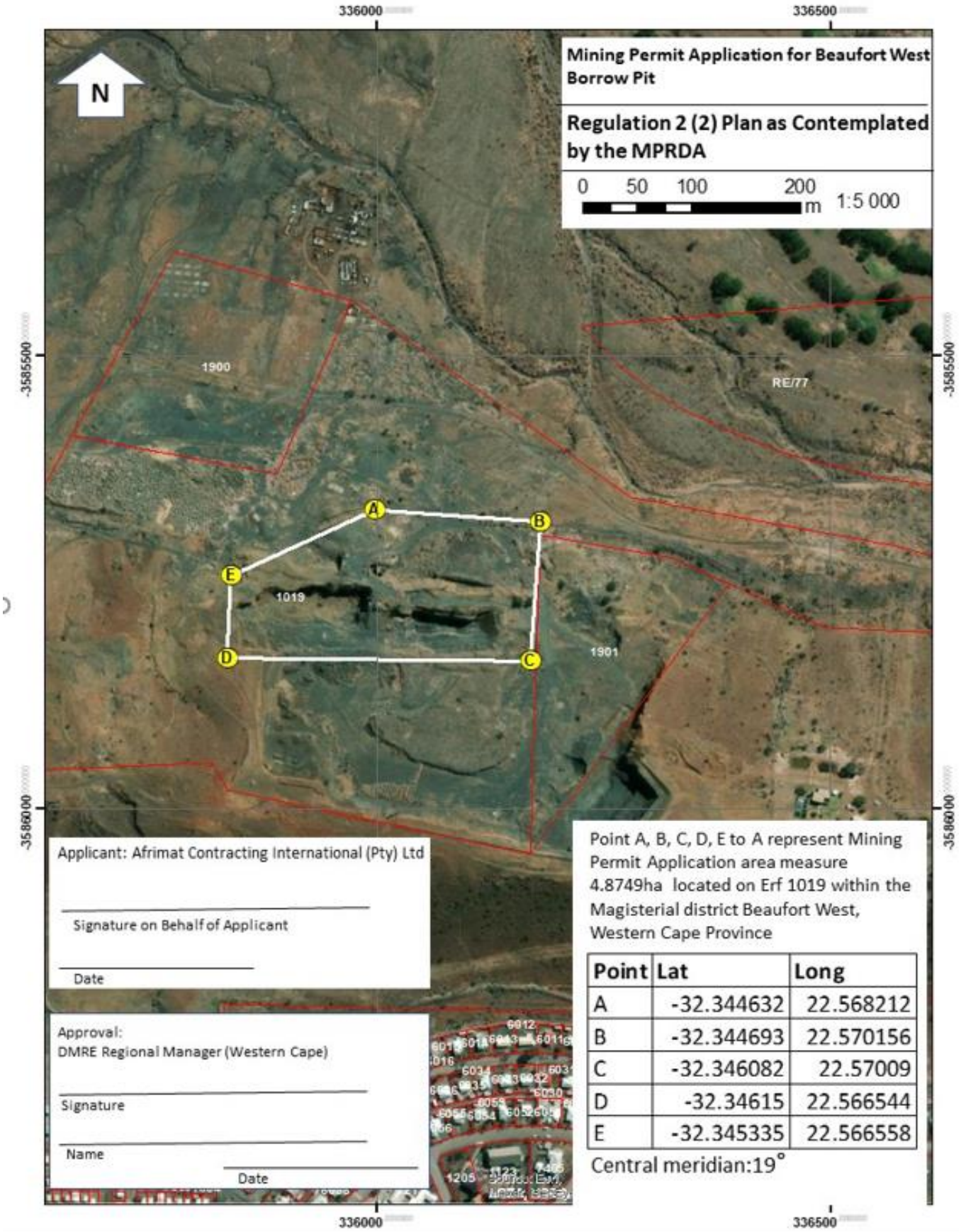

Figure 2: Regulation 2 (2) drawing

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.

4.1 Listed and specified activities

NAME OF ACTIVITY	Aerial extent of Activity (Ha or m^2)	LISTED ACTIVITY (Mark with X)	APPLICABLE LISTING NOTICE *(GNR 983- 985), amended 2017*	WASTE MANAGEMENT AUTHORISATION
Application for Mining Permit	4.8749ha	**X**	**GNR983: Activity # 21**	
1. Establishment Phase				
1.1. Demarcate use areas and permit boundary using visible poles or alternative demarcation system	No danger tape.			
1.2. Use of existing access road available on site.				
1.3. Prepare the plant and stockpiling area for use.	±1.4ha			
1.4. Establish logistical facilities including Security Kiosk, Weighbridge facility and Chemical Toilet.				
1.5. Establish steel-bunded diesel tank of <30,000 litres	<30kl			
1.6. Establish Processing plant (probably mobile plants to be used)[1]				
1.7. No topsoil removal will be needed as this is a previously mined quarry				
2. Operational Phase				
2.1. Drilling and blasting				
2.2. Loading and hauling shot rock to mobile crusher using haul road				
2.3. Crushing and screening.	Most likely mobile Plant	**X**	**GNR983: Activity # 21**	
2.4. Loading and hauling crushed material to stockpile.				
2.5. Dispatch loading of delivery vehicles.				
2.6. Delivery along delivery route				
2.7. Conduct dust suppression on haul roads and plant.	If required			
2.8. Refuelling and hydrocarbon management.				
3. Decommissioning Phase		**X**	**GNR983: Activity # 22.** Only applicable at time of closure	

[1] The establishment of the plant is not the listed activity. The use of that processing is the listed activity and is included below.

NAME OF ACTIVITY	Aerial extent of Activity (Ha or m^2)	LISTED ACTIVITY (Mark with X)	APPLICABLE LISTING NOTICE *(GNR 983- 985), amended 2017*	WASTE MANAGEMENT AUTHORISATION
3.1. Remove all plant and structures.				
3.2. Consolidate retained stock neatly in designated area.	As required			
3.3. Rip/scarify hardened/compacted surface of plant and stockpiling area and access road if required.	±1.4ha			
3.4. Construct safety berm and trench around excavation perimeter when needed				
3.5. Conduct final performance assessment for closure.				
3.6. Lodge Closure Application	4.8749ha Mining Permit Area			
3.7. Allow quarry floor to flood as a reed bed during the rainy season (retain haul road for access to floor) - Unlikely	Floor area will measure ±0.75 ha.			
4. Aftercare Period				
4.1. Remove alien vegetation if present and monitor revegetation success and reseed if required	4,8749ha and immediate surrounds			

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)

Background

The purpose of licensing this Mining Permit site is primarily to produce hard rock aggregate suitable for high quality concrete for windfarm tower bases and for the supply of road stone in and around the Beaufort West area. Stone quality is therefore paramount in this application and the choice of this site.

The chosen site is that of an abandoned hard rock quarry earlier used for N1 construction and upgrades. The current application plan is to excavate the current floor deeper and further develop the quarry. As the quarry is largely disturbed with mobile plant also going to be located in earlier disturbed area, no impact on vegetation is anticipated.

Please refer Photos 1 to 4 below to see current status of the proposed site.

Photo 1: Showing already exposed rock for development

Photo 2: Status of quarry that is largely disturbed

Photo 3: Possible mobile plant area in disturbed area.

Photo 4: Already distubed area which can be used as stockpile area

Excavation planning informants:

Certain aspects of the environment dictate any excavation extent. The following aspects were considered and incorporated where necessary into the mine plan:

1) The geology (Mainly Middleton Formation) Brownish-red and greenish-grey mudstone, subordinate siltstone and sandstone which would allow face advance and floor deepening
2) As this quarry was used before no new access road is need. Only maintenance of the existing road is needed.
3) The re-use of an existing quarry with exposed target aggregate material is an advantage as it means no new disturbances will be created for the purpose of windfarm energy and road projects in the area.
4) The earlier disturbed plant and stockpile will be sufficient for the stockpile volumes envisaged for this application.
5) The excavation will only be visible to only adjacent water purification works and to the southeast and informal squatter camps to the northwest.

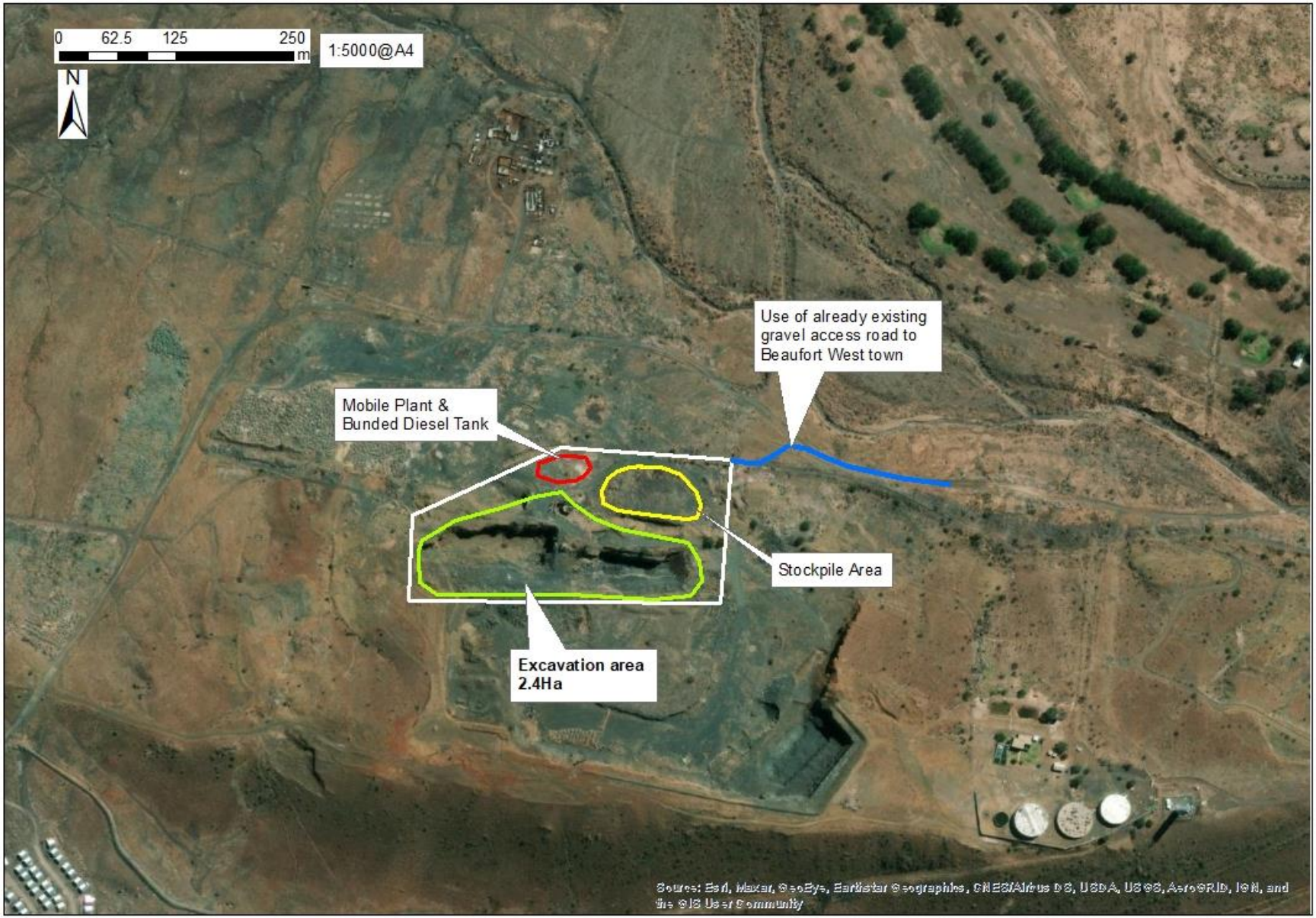

Figure 3: Overall Mine (Site) Layout Plan

Mining Method (Refer Figure 3 above)

The existing quarry will be further developed by:

(i) Removal of any minimal topsoil encountered to perimeter berms.

(ii) Limited overburden stripping by excavator or dozer ripping followed by loading to dump trucks for crushing as subbase to allow fresh rock face advance (overburden depth generally shallower than 1m)

(iii) Drilling and blasting for:

- Face advance rock and expansion of the existing floor area
    - Deepening of the expanded floor

(iv) Blasted rock will be loaded by excavator to dump trucks for hauling to the crusher intake ramp for tipping into the crusher hopper

(v) Crushing and screening will take place by a mobile crushing and screening plant located within the previous plant and stockpile area.

(vi) Product stockpiling will be done by haul truck after loading by front-end loader which will also conduct dispatch loading of delivery trucks to the windfarm and road contract sites.

Access road (refer Figure 3):

A 17 September 2021 site visit revealed that there is already an access road from this previously used quarry. Such access road will be used for this project. The gravel access road will be maintained by grader and wetted by water cart on windy days.

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 planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process)	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 DMRE as competent authority
Mineral and Petroleum Resources Development Act	Template for BAR	DMR application and process
Municipality's SDF	Need and Desirability (Para 6.2)	End Use informant
National Water Act	No water resources will be disturbed	Water Use Licence applications if it were required
National Heritage Resources Act	Para 27.1.2	Heritage (NID) will be lodged with HWC.
EIA Guideline and Information Document Series' "Guideline on Need and Desirability	Need and Desirability (Para 6.1)	Guideline for information utilized in this document
EIA Guideline 5 Assessing alternatives and impacts	Cumulative Impact Assessment (Para 6.2)	Guideline for information utilized in this document
NEMWA	Not applicable	No application for Waste Licence required

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 year-long renewable to maximum 5 years) lifespan but also concentrate on the long term / permanent post mining land use proposal. As background to the following paragraphs, the proposed eventual land use which is to rehabilitate all immediately peripheral areas to be safe and non-polluting and to acknowledge the unique rock suitability for further contract quarrying using the already disturbed footprint for future projects.

Need refers to timing of a project whilst desirability refers to the placing of the activity.

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 Beaufort West Municipality. The latest Beaufort West SDF (dd August 2008) shows the entire area is identified as a quarry (Grey). Therefore, the end use of the Mining Permit area will ensure that quarry is rehabilitated so as to allow further development of the quarry by others in future.
2) Other land uses identified close to the application area is hills (brown). No major sensitive environmental aspects are mapped near the site. It is noted that immediately to the west and north of the site builders rubble is being dumped by locals. Additional, a reservoir is noted to the east (blue dot).

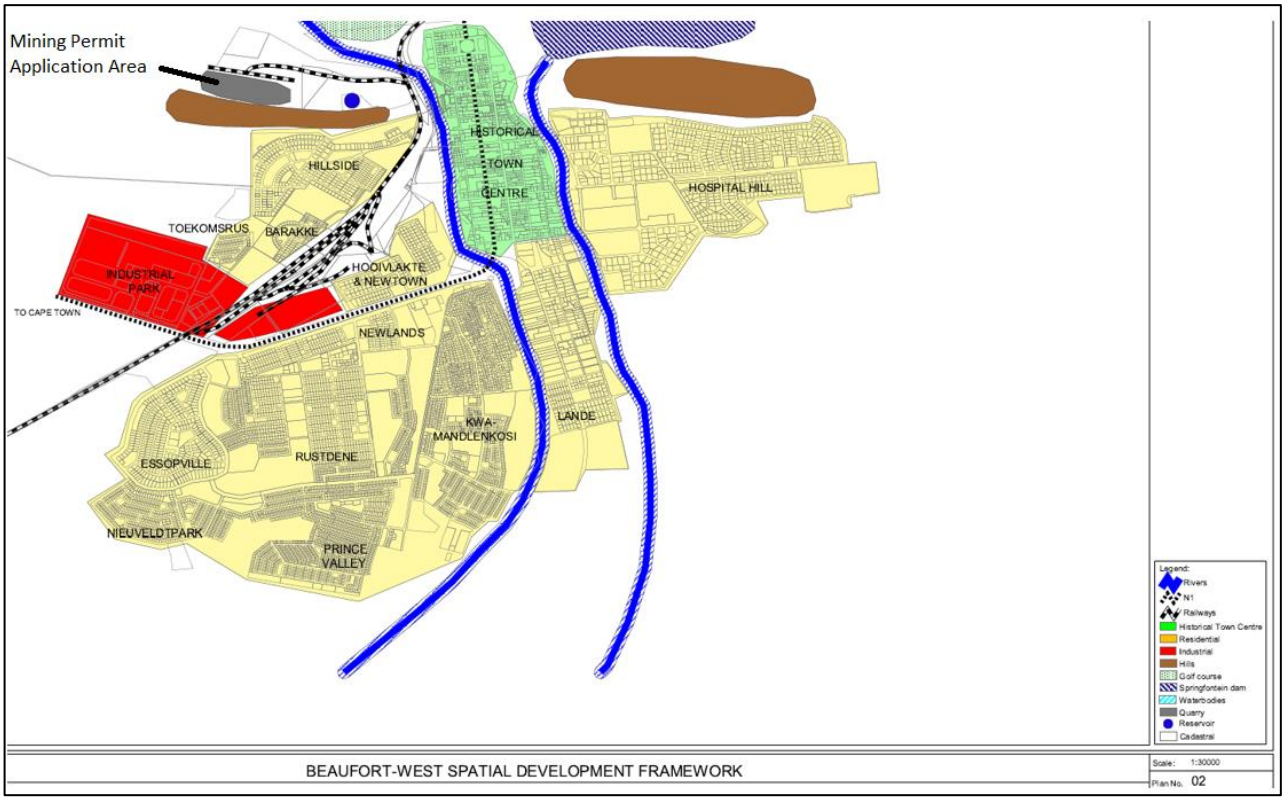

Figure 4: Excerpt from 2008 Beaufort West Municipal SDF

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 whole area is classified as falling within the Gamka Karoo vegetation. However, as noted above this Mining Permit Application area is entirely as previous disturbed quarry with builders' rubble or Construction and Demolition Waste (CDW) being dumped all around the quarry. Therefore, there is no remnant vegetation left to be considered in this area. The area was classified to have patches of Ecological Support Areas but such areas have been totally disturbed at current state. (Refer Figure 8)
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 previous disturbed quarry site.
1.1.5.	Ecological drivers of the ecosystem.	The site is not located in any wetland, estuary.
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 land 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	There is no significant vegetation remnants in this already disturbed quarry site.
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 only real 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?	Waste volumes will be very low and is restricted to the lunch wrappers and drinks bottles of the staff on site and limited packaging waste as per 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 serious landscape aspect will be significantly adversely affected. In terms of Heritage, the excavation is limited to already excavated area and a simple chance find procedure for any possible fossils or artifacts 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. The only resource which would be used is a minimal water consumption for dust control. If a license or general authorization is required for such water use, it will be applied for at the relevant authority.

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.
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 has previously been mined and now prove to be a suitable resource best used for the purpose to which the material is suited, namely 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 choice of using this already used quarry is an advantage as no other virgin area will be disturbed.
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?	There is no significant limit of knowledge and consequently the risk is low.
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 resulting 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.)?	The project serves a renewable energy project which improves the ecological impact of current energy generation.
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?	It is clear that 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 but makes no mention of mining in the Municipality. The proposed development meets targets of the IDP in that it does facilitate development as well as creating jobs (albeit very few and temporary of nature).
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?	The small scale, simple nature and temporary nature of the proposed development does not lend itself to significant economic development or skills development. So although these factors will occur they will be very small.
2.3.	How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities	The small scale, simple nature and temporary nature of the proposed development does not lend itself to significant development in respect of the listed aspects. So if these aspects are impacted on, they would be very small impacts.
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?	Any impact in this regard will be absolutely insignificant.
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 located inside Beaufort west town and is adjacent to potential local labour. Therefore, there is potential for local employment.
2.5.2.	reduce the need for transport of people and goods	Given that mining is located through geological informants, its location cannot be chosen to reduce the need for transport of people or goods.
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,	Provided rehabilitation occurs as per the EMP, then the impact will be insignificant
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	Not applicable. Although reuse of existing quarry can be viewed as optimising the use of existing resources and infrastructure
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. This is a Mining Permit which is place-bound by the resource.
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),	Yes as this is a previously abandoned quarry re-use is a positive for the area.
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 mining permit application area is designated as a quarry and the excavation area is already excavated. Therefore, no heritage impact is envisaged. A simple chance and find procedure is included in staff induction manual Appendix 5.

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. Staff will be cautioned on matter of zero tolerance to stock theft.
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.)?	There are two close land uses that will need to be considered is the impact on the water reservoir and informal settlement northwest of the site. Such land -uses will be engaged to obtain their consent.
2.9.	What measures were taken to pursue the selection of the "best practicable environmental option" in terms of socio-economic considerations	Not applicable, given the very low negative (if any) impact of socio-economic considerations.
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.
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.

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 kind of 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,	The life of mine is only 2 years renewable to maximum 5 years. The artisan and specialist operator staff positions will most likely be filled by contractors to the applicant while casual labour will be recruited locally.
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),	Where suitably skilled persons are available they would 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	Very small scale impacts. Job opportunities are also 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 mining operation will only provide direct employment for 2 (max 3) persons and 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 insignificant 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 development of the sustainable national energy program.
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 he 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 Permit holders are responsible to annually update a calculation to determine the costs of Immediate Closure of the site. Such calculation is based on DMR 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 on an already degraded and use environment and quarry, th option of no-go is not feasible.
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?	The impact of this development has already occurred and is so small that no detailed cumulative impact assessment is deemed necessary. Such detailed analysis would most certainly show that there is minimal cumulative impact arising out of this application. Para 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.

Always remember that mining is a place-bound operation (as opposed to say housing or shopping development which is less dependent on geology or other factors).

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. excessive groundwater abstraction from several operations in the same area result in a severe drawdown effect)

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

- Countervailing – the net adverse effect is less than the sum of the individual impacts (e.g. pumping clear water into a polluted water resource).
- Synergistic – when the impacts work together to develop a sum of different impacts results in an impact which is greater than the individual impacts.

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:
  - Characterise 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:

This is the only project of this nature in this area and consequently the impacts of this project will not result in any "Additive Impact".

Given that the areas of existing impacts of previous excavation, plant and stockpiling area and major portion of the delivery road impacts increase by reuse of the site will be minimal, the total synergistic interactive impacts is considered insignificant.

There are two main impacts need to be managed in this site namely:

a) Dust: from crushing and delivery trucks on the access road. Such impact will need to be managed by wetting of road and ensure mobile crush has dust covering shuts at the transfer points.
b) Noise: From the crushing plant and moving equipment. Such impact should be managed by ensuring that all moving equipment and trucks silencers are maintained.
c) Blasting: Ensure that blasting design is adjusted to ensure no impact on surrounding uses. In the quarrying industry, a blasting distance of 150m from structures is considered adequate so as to ensure that not impact is caused to infrastructure.

Geographic Scope of assessment:

As indicated in points a), b), and c) above, the three impacts have to be managed carefully.

Timeframe of analysis

A timeframe for 2 to 5 years of operational impacts and the post mining period was considered in terms of residual impact.

Other activities impacting on environmental resources in the area

The area and surrounds has been impacted on by:

- The existing unrehabilitated mining site

Resource characterization

This section aims to characterise the environmental resources in terms of their ability to withstand additional stress.

There will be no significant cumulative additional stress apart from the impacts identified at points a), b) and c) above.

Magnitude and significance of cumulative impacts

Cumulative impact is considered low.

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

7.1 Overall Preferred Site Alternative (Motivation)

The site was considered as the best site based on site a visit by Afrimat geologist to assess the rock quality and the fact that this site is an already excavated quarry with

exposed aggregate makes it one of the best sites as no virgin site will be disturbed. Furthermore, the SDF plans identifies the site as a quarry.

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

The location primarily dictated by being an abandoned quarry which is suitable for reuse in the supply of the required materials for future windfarm projects and maintenance of proximate roads.

The selection of this site followed a reconnaissance visit to the district in the consideration of optional target areas.

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 adjacent stockpile area is the activity type chosen and is the same as was previously applied to the site requiring no deviation and minimising the expected impact.

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

No alternatives were considered as the inherited disturbance areas are perfectly suited to re-establish the earlier operational system and layout.

8.1.6 The option of not implementing the activity

The option of no go project was dismissed given the insignificant impact of the operation (should rehabilitation take place in accordance with the prescriptions of this document and proposed mitigation measures be respected).

8.2 Details of the Public Participation Process Followed

The process was initiated with the identification of I&AP's using the list included in the DMRE template below as a guide. Windeed and landowner knowledge of surrounding landowners was utilised to obtain surrounding landowners details as well as contact information (refer Figure 7 Surrounding Landowners overleaf). Other I&AP's were identified because of their position as State Departments, Local Authorities, NGO's or community representation.

Most identified parties were contacted by telephone to ensure the correct contact details. All parties are sent a copy of the draft BAR/EMP with covering letter via a link as Covid 19 Regulations do not allow hard copy distributions (see Appendix 3).

The broader community was alerted through local newspaper advert (Die Courier) and A2 notices placed at the entrance to the property and public spaces- Refer Appendix 2 for copies of these. In addition, the local Ward Councillor was specifically contacted and such consultation will continue. A public meeting was not arranged as Covid-19 reports show that in January South Africa could be the start of the forth wave for South Africa.

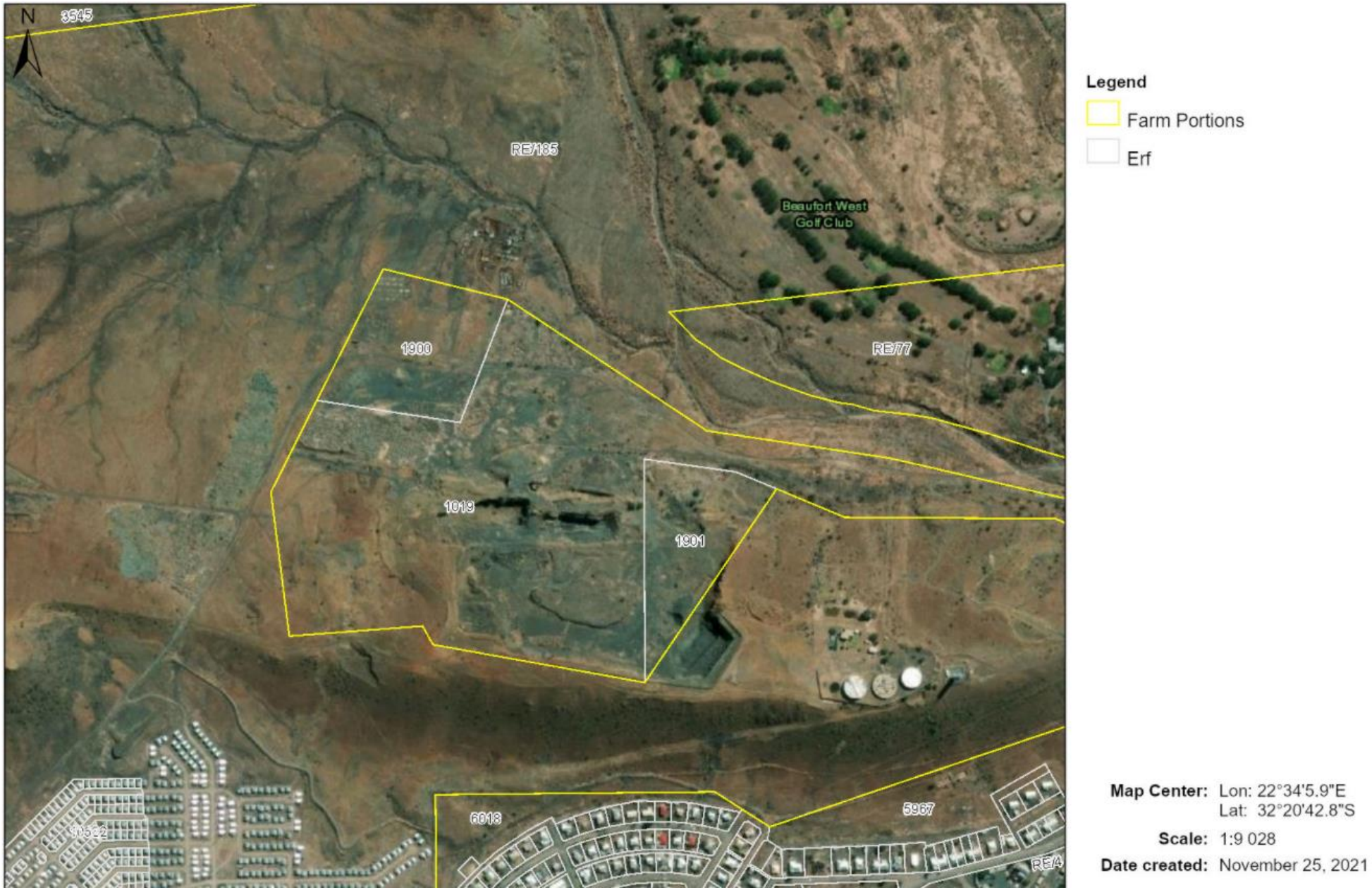

Figure 5: Surrounding Landowners (Source: Cape Farm Mapper)

8.3 Summary of issues raised by I&Aps

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

					Para in this report where the issues / responses were incorporated.
OTHER AFFECTED PARTIES					

				Para in this report where the issues / responses were incorporated.
INTERESTED PARTIES				

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 quarry is on an elevated hill within Beaufort West Town (refer Figure 6) for topography. The quarry is about 20m higher from the southern formal settlement. North of the site is an ephemeral stream called Gamka River.

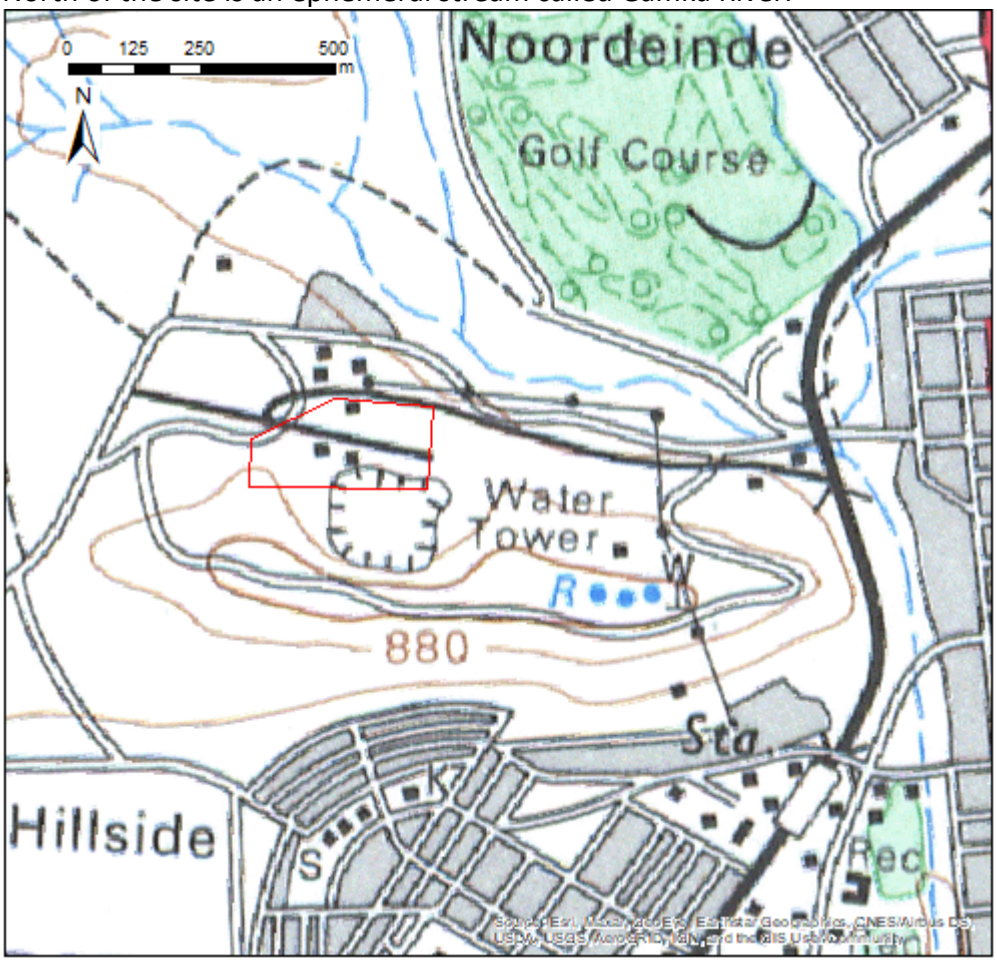

Figure 6: Topography of Beaufort West Mining Permit application

9.1.2 Visual Impact

As mentioned above that the quarry is on a elevated hill with the Beaufort West town in low flat area. Consequently, the only significant visual impact from this quarry will be on the Water Purification Works and the informal settlement to the north west. It is important to note that the quarry has always been a visual impact to surrounding uses and only the presence of mobile plant, trucks and stockpiles will be the new visual impact elements.

9.1.3 Soil

As mentioned in sections above, this is an excavated quarry site. Minimal topsoil exists on the site as the whole mining permit application site formed part of a larger

quarry area. Consequently, no topsoil characteristics are warranted for this application.

9.1.4 Land Capability / Agricultural potential

This is an old use quarry and thus land capability or agricultural impact will not be adversely affected by approval of this application.

9.1.5 Natural Vegetation

Mucina and Rutherford (2012) classify this area and surroundings as falling under the Gamka Karoo type (Refer Figure 7). Nonetheless, the application area has no vegetation and thus further assessment of vegetation is irrelevant for this application.

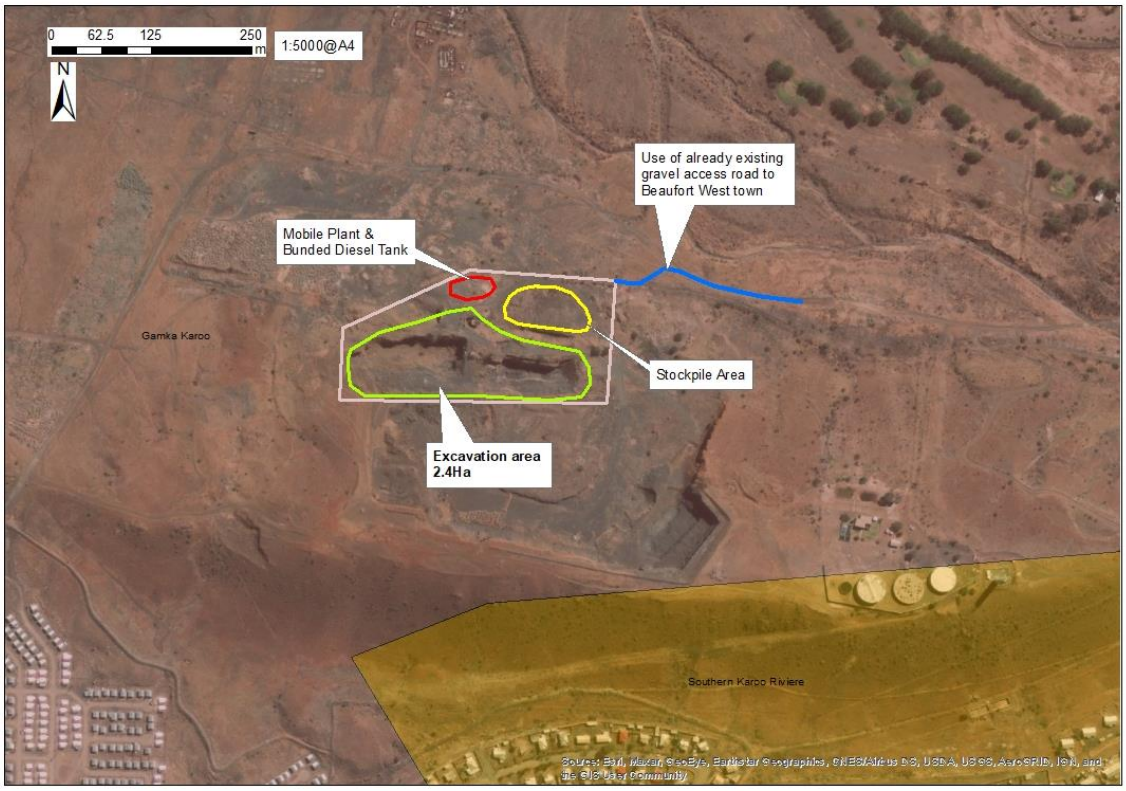

Figure 7: Vegetation biomes (Mucina and Rutherford, 2012)

a) Critical biodiversity status

The following mapping (Figure 8 below) from the Critical Biodiversity database shows that there are two ecological support areas. However, similarly to vegetation above, as per google background, these areas have been significantly degraded by others and are no longer as mapped.

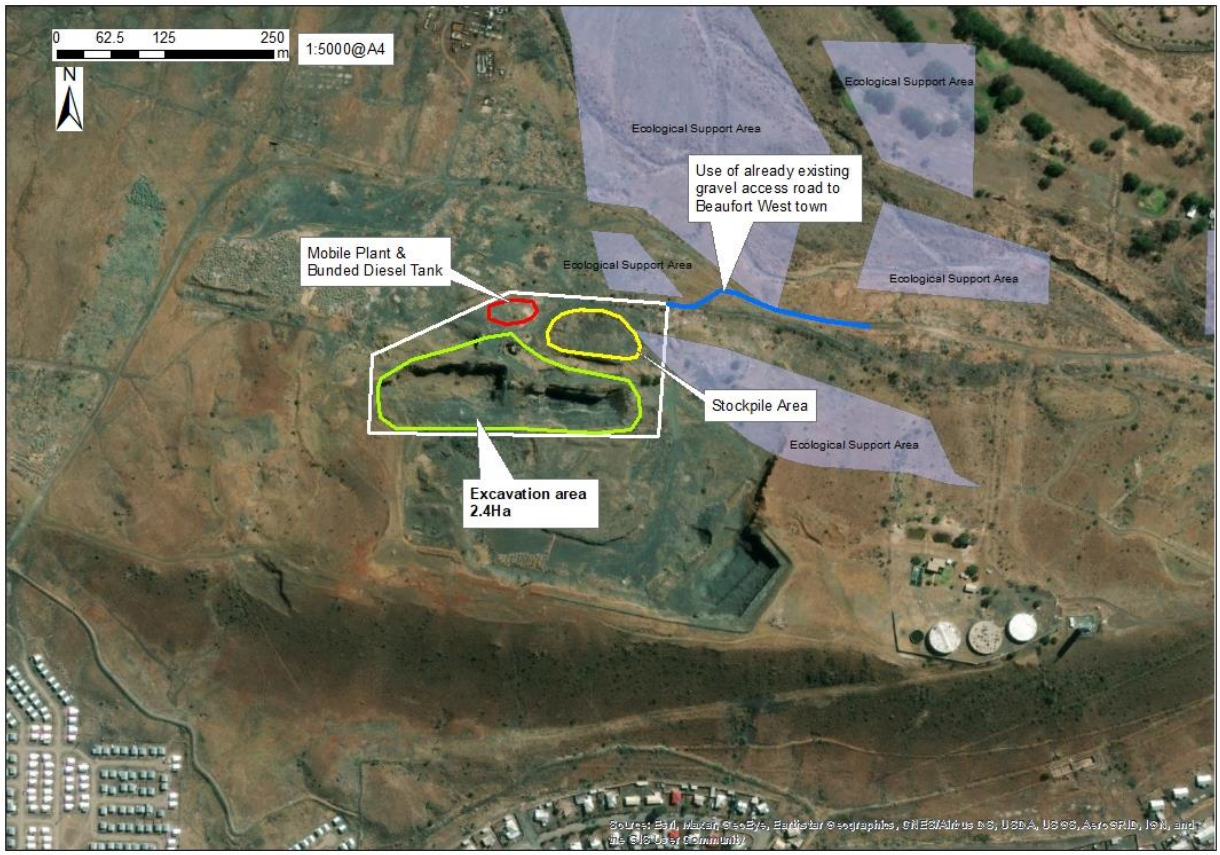

Figure 8: CBA classification map

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.

The development of the site does not represent any threat to any corridor or connectivity of natural systems. No specialist study appeared warranted regarding animal life.

9.1.7 Surface Water

This site is located in Quaternary Drainage basin J21A which is in the Breede Gouritz Catchment Management Agency's area of jurisdiction. To the north of the Mining Permit application site is the ephemeral Gamka River as shown in Figure 9 below. The application area and it activities are more that 32m away from the river and will not have any impact on the river. No surface water will be used during the operational phase of this mining project

Figure 9: Surface water characteristics adjacent to the quarry site (Source: Cape Farm Mapper)

9.1.8 Ground Water

As stated, the site is located in Quaternary Basin J21A. Farm Mapper reports that the aquifer classifies as Major fractured aquifer and that groundwater quality is good with EC of 70-150mS/m. Given that the floor of the quarry will only be deepened by at most 20m it is highly unlikely that any groundwater will be revealed through proposed mining.

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 outlined 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 m² 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	DUSTFALL RATE (D) (*mg* /m² /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.

Band number	Band description	DUSTFALL RATE (D) (*mg* /m² /day [1] 30-day average)	Comment
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 dustfall rates which fall within Band 4 (ALERT Band) as specified in Table 9.

4.8.5 Exceptions

Dustfalls 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 dustfall 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"

Existing dust sources in this area results from:

- Vehicles on unsurfaced roadway which is also going to be used as access road for this project.
- Dumping of builders immediately west adjacent the excavation.

Potential dust sources at this site will be:

(i) Very 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 hardrock 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 and providing chute drop points onto stockpiles
(vi) Wetting of the delivery road or preferably armouring the delivery road with hard crushed material which will not powder
(vii) Covering delivery vehicle loads

Windrose of the Beaufort west area (Diagram 1 below) shows that winds in this area are predominantly North-north Westerly and South-Easterly. Consequently, dust is likely to significantly impact the subsistent farmer (informal settlement) to the north west and the water purification works to the south east. Therefore, dust mitigation measure must be implemented thoroughly to limit such impacts no significant dust to golf course.

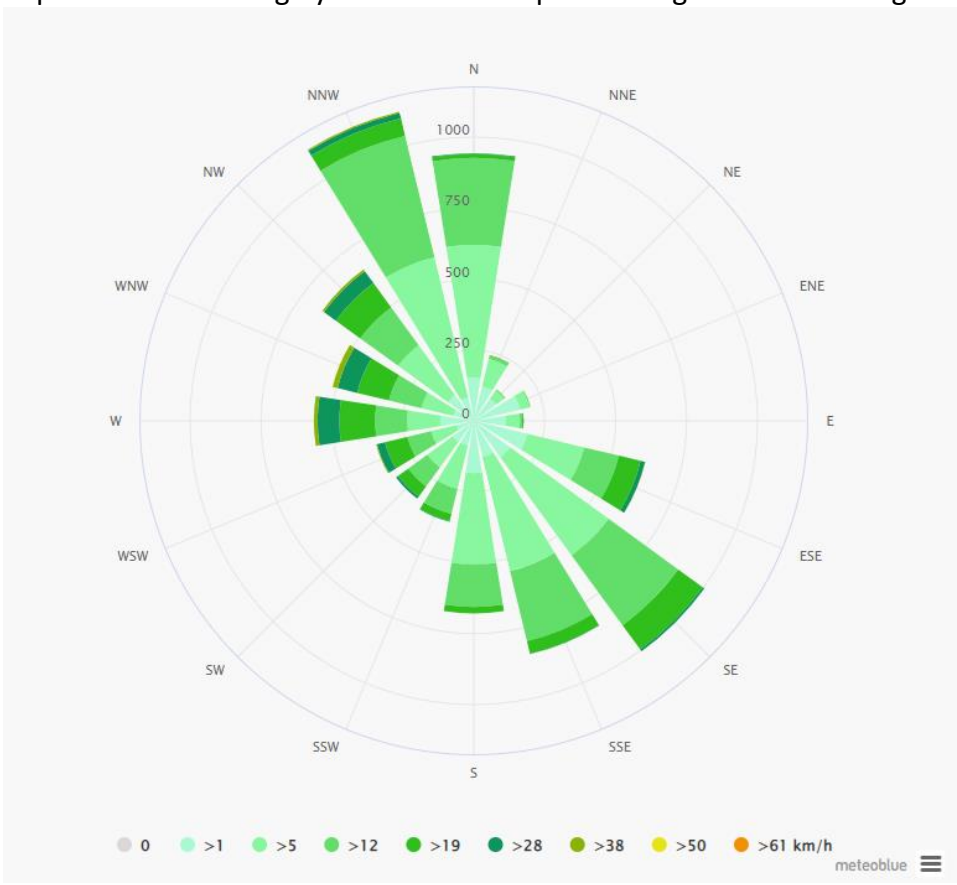

Diagram 1: Windrose of Beaufort West (Source Mateoblue)

9.1.10 Noise

Existing noise sources in this area results from:

- Limited traffic of the gravel road going to be used for access road

Potential noise sources arising from this operation:

(i) drilling for blasting
(ii) blasting which is likely to occur at most once every 10-14 days
(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 vehicle noise

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

(i) Maintenance of exhaust silencers on mobile plant and trucks
(ii) Rubber belting enclosure of primary and secondary crusher structures

9.1.11 Delivery Traffic

Delivery will take place from the quarry onto gravel road to later join the N1 in Beaufort west town. At this stage it is estimated that a daily trip generation of 10-15 truck in and 10-15 trucks out. Such volumes are expected not to overwhelm the traffic system of the area.

9.2 Description of the current land uses.

9.2.1 On-site land use

The 4.87ha Mining Permit area site consists of the following land uses:

- 95% unrehabilitated earlier quarrying footprints of the excavation, the plant/stockpiling area.

9.2.2 Surrounding Land use

In terms of surrounding land use, the following applies:

- The closest built structures to the site are those of:
  - Beaufort West Water purification works at 330m south east of the mining permit area
  - Informal settlement (used partly for subsistence farming by owners) 257m north west of the Mining Permit area.
- Beaufort west golf club on the northern side of the Gamka River some 370m away.
- The formal settlement of Beaufort West town which is some 450m south and is at a lower elevation with a steep hill limiting any significant visual exposure to the town.

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

Refer to section 9.2.2

9.4 Environmental and current land use map.

(Show all environmental and current land use features)

Please refer:

Figure 1: Locality Plan
Figure 2: Regulation 2 (2) drawing
Figure 3: Overall Mine (Site) Layout Plan

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 and differentiates 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	Moni./Manage
Application for Mining Permit																
1. Establishment Phase																
1.1. Demarcate use areas and permit boundary using visible poles or alternative demarcation system																
1.2. Use of existing access road available on site.																
1.3. Prepare the plant and stockpiling area for use.																
1.4. Establish logistical facilities including Security Kiosk, Weighbridge facility and Chemical Toilet.																
1.5. Establish steel-bunded diesel tank of <30,000 litres																
1.6. Establish Processing plant (probably mobile plants to be used)[2]																
1.7. No topsoil removal will be needed as this is a previously mined quarry																
2. Operational Phase																
2.1. Drilling and blasting																
2.2. Loading and hauling shot rock to mobile crusher using haul road																
2.3. Crushing and screening.																
2.4. Loading and hauling crushed material to stockpile.																
2.5. Dispatch loading of delivery vehicles.																
2.6. Delivery along delivery route																
2.7. Conduct dust suppression on haul roads and plant.																
2.8. Refuelling and hydrocarbon management.																
3. Decommissioning Phase																
3.1. Remove all plant and structures.																

[2] The establishment of the plant is not the listed activity. The use of that processing is the listed activity and is included below.

Activity. **This table identifies potential impacts and differentiates 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	Moni./Manage
3.2. Consolidate retained stock neatly in designated area.																
3.3. Rip/scarify hardened/compacted surface of plant and stockpiling area and access road if required.																
3.4. Construct safety berm and trench around excavation perimeter when needed																
3.5. Conduct final performance assessment for closure.																
3.6. Lodge Closure Application																
3.7. Allow quarry floor to flood as a reed bed during the rainy season (retain haul road for access to floor) - Unlikely																
4. Aftercare Period																
4.1. Remove alien vegetation if present and monitor revegetation success and reseed if required																

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
Application for Mining Permit								
1. Establishment Phase								
1.1. Demarcate use areas and permit boundary using visible poles or alternative demarcation system								
1.2. Use of existing access road available on site.								
1.3. Prepare the plant and stockpiling area for use.								
1.3.1. Air Quality (dust)	Construction upgrade	0.25 ha	Establishment	Definite	Low	Not reversible	No	Mitigated
1.3.2. Hydrocarbon	Potential impact through oil fuel leaks	0.25ha	Establishment	Possible	Low	Reversible	No	Managed
1.4. Establish logistical facilities including Security Kiosk, Weighbridge facility and Chemical Toilet.								
1.4.1. Noise	Equipment	At point	Establishment	Definite	Low	Not reversible	No	Managed
1.4.2. Hydrocarbon	Potential impact through oil fuel leaks	At point	Establishment	Possible	Low	Reversible	No	Managed
1.5. Establish steel-bunded diesel tank of <30,000 litres								
1.5.1. Noise	Equipment	At point	Establishment	Definite	Low	Not reversible	No	Managed
1.5.2. Air Quality (dust)	Construction	At point	Establishment	Definite	Low	Not reversible	No	Managed
1.5.3. Hydrocarbon	Potential impact through oil fuel leaks	At point	Establishment	Possible	Low	Reversible	No	Managed
1.6. Establish Processing plant (probably mobile plants to be used)[3]								

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
1.6.1. Visual	Noticeable from surrounding land uses	Immediate surroundings	Life of Mine (LOM)	Definite	Insignificant	Reversible	No	None
1.6.2. Noise	Significant at point	At point	LOM	Definite	Significant at point but low on surrounding uses	Not reversible	No	Mitigate
1.6.3. Hydrocarbon	Potential impact through oil/fuel leaks	At point	LOM	Possible	Low	Reversible	No	Managed
1.7. No topsoil removal will be needed as this is a previously mined quarry								
2. Operational Phase								
2.1. Drilling and blasting								
2.1.1. Dust	Drilling and blasting activity	Immediate surrounding uses	Periodic once per 2-3 weeks	Possible	Low	No	No	Managed
2.1.2. Noise	Drill rig	At point	Periodic	Definite	Low	Not reversible	No	Managed
2.1.3. Hydrocarbon	Potential impact through oil/fuel leaks	At point	Periodic	Possible	Low	Reversible	No	Managed
2.2. Loading and hauling shot rock to mobile crusher using haul road								
2.2.1. Noise	Equipment	At point	LOM	Definite	Low	No	No	Managed
2.2.2. Air Quality (Dust)	Loading point and haul road vehicle dust	At point and route	LOM	Definite	Low	No	No	Managed and mitigated
2.2.3. Hydrocarbon	Potential impact through oil/fuel leaks	At point	LOM	Possible	Low	Reversible	No	Managed
2.3. Crushing and screening.								
2.3.1. Noise	Equipment	At point	LOM	Definite	Low	No	No	Managed
2.3.2. Air Quality (Dust)	Crushing and screening	At point and route	LOM	Definite	Low	No	No	Managed and mitigated

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
2.3.3. Hydrocarbon	Potential impact through oil/fuel leaks	At point	LOM	Possible	Low	Reversible	No	Managed
2.4. Loading and hauling crushed material to stockpile.								
2.4.1. Noise	Loader and haul trucks	At point	LOM	Definite	Low	No	No	Managed
2.4.2. Air Quality (Dust)	Loading point and haul road vehicle dust	At point and route	LOM	Definite	Low	No	No	Managed and mitigated
2.4.3. Hydrocarbon	Potential impact through oil/fuel leaks	At point	LOM	Possible	Low	Reversible	No	Managed
2.5. Dispatch loading of delivery vehicles.								
2.5.1. Noise	Loader and delivery trucks	At point	LOM	Definite	Low	No	No	Managed
2.5.2. Air Quality (Dust)	Blowing during loading	At point	LOM	Likely	Low	No	No	Managed
2.5.3. Hydrocarbon	Potential impact through oil/fuel leaks	At point	LOM	Possible	Low	Reversible	No	Managed
2.6. Delivery along delivery route								
2.6.1. Air Quality (Dust)	Vehicle dust on gravel road	Along gravel delivery route	LOM	Definite	Low/moderate	No	No	Managed and mitigated
2.7. Conduct dust suppression on haul roads and plant.								
2.8. Refuelling and hydrocarbon management.								
3. Decommissioning Phase								
3.1. Remove all plant, structures and logistical facilities.								
3.1.1. Hydrocarbon	Potential impact through oil/fuel leaks	At point	Decommissioning	Possible	Low	Reversible	No	Managed

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. Consolidate retained stock neatly in designated area.								
3.3. Rip/scarify hardened/compacted surface of plant and stockpiling area and access road if required.								
3.3.1. Noise	Equipment	At point	Decommissioning	Definite	Low	Not reversible	No	Managed
3.3.2. Air Quality (Dust)	Construction	At point	Decommissioning	Definite	Low	Not reversible	No	Mitigated
3.3.3. Hydrocarbon	Potential impact through oil/fuel leaks	At point	LOM	Possible	Low	Reversible	No	Managed
3.4. Construct safety berm and trench around excavation perimeter when needed								
3.4.1. Noise	Equipment	At point	Decommissioning	Definite	Low	Not reversible	No	Managed
3.4.2. Air Quality (Dust)	Equipment making dust	At point	Decommissioning	Definite	Low	Not reversible	No	Mitigated
3.4.3. Hydrocarbon	Potential impact through oil/fuel leaks	At point	LOM	Possible	Low	Reversible	No	Managed
3.5. Conduct final performance assessment for closure.								
3.6. Lodge Closure Application								
3.7. Allow quarry floor to flood as a reed bed during the rainy season (retain haul road for access to floor) with potential for further mining of quarry floor in future contracts								
4. Aftercare Period								
4.1. Remove alien vegetation if present								

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. Monitor revegetation success, with follow-up seeding if required. Allow natural re-seeding by windblown seed following aftercare period.								

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).

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 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.

The impacts are rated according to nature, extent, duration, probability of occurring and significance.

a) The significance level is based on the following criteria:

Significance		***Criteria***
Negative	Significant (S)	• Recommended level always exceeded with associated widespread community action • Disturbance to areas that are pristine, have conservation value, are important resource to humans and will be lost forever • Complete loss of land capability • Destruction of rare or endangered specimens • May affect the viability of the project
	Moderate (M)	• Moderate measurable deterioration and discomfort • Recommended level occasionally violated – still widespread complaints • Partial loss of land capability • Complete change in species variety or prevalence • May be managed • Is insignificant if managed according to EMP provisions
	Minor/ (I) Insignificant	• Minor deterioration. Change not measurable • Recommended level will rarely if ever be violated • Sporadic community complaints • Minor deterioration in land capability • Minor changes in species variety or prevalence
	Negligible	• An impact will occur but it is barely discernible and not worthy of further investigation
Positive	Minor	• Improvements in local socio-economics
	Significant	• Major improvements in local socio-economics with some regional benefits

b) The **duration** is classified as:
- Permanent (post-closure)
- Life of Mine (LOM)
- Temporary

c) The **probability** is ranked as:
- Definite/Certain
- Possible

- Unlikely

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)

Draft impacts and attenuations are contained in this document. This will be amended in final documentation if any concerns are raised by affected parties.

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

We have applied mitigation measures generally used in the industry to reduce level of risk.

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

Any further mitigations called for in the I&AP process will be contained in the final report.

14 Motivation where no alternative sites were considered.

Alternatives were considered as per para 7.1 and 8.1.1.

It should also be stated that under current legislation and heightened environmental awareness it is very difficult (almost impossible) to find a quarry site sufficiently close to market which is not located in a CBA (with natural areas often being historically foregone as agricultural lands because they were too rocky), generally not close to any residence or public road and with suitable geology (and out of public's view) and hence this proposed site which offers most of these opportunities was chosen.

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

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

As discussed earlier regarding the mine plan, maximum use is made of the disturbed footprint which remains on site following earlier contract quarrying of the same nature.

- The overriding informant is the excellent rock offered by the geology and the opportunity which existing faces and floor of the excavation offer for immediate face advance and floor deepening.
- Likewise, the existing disturbance by earlier plant and stockpiling offers a perfectly level and low lying area for the same use in this proposal.

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 site which has been previously disturbed offer a suitable site with no disturbance of any virgin land.

18 Summary of specialist reports.

This site which has been previously disturbed offer a suitable site with no disturbance of any virgin land. No specialist are identified for this application. This site has been previously disturbed and no specialist reports are deemed necessary for the lack of significant impacts.

19 Environmental impact statement

19.1 Summary of the key findings of the environmental impact assessment

The findings are that the proposed mining of this site in terms of this plan will result in insignificant impacts given the use of the abandoned quarry footprint in virtually all aspects of the environment.

As all activities are largely restricted to earlier disturbed areas.

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 noted that detail 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.
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.

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:

Negative impacts / risk to the environment:

1) Impact on vegetation: no virgin vegetation will be disturbed.
2) Visual impact: The resultant residual visual impact, provided that the proposed mine plan and rehabilitation contemplated in this document is adhered to will be negligible to leave the site to be having the same impact as current impact.
3) Dust and noise impact from earthmoving equipment on site. Impact will be low to medium as attenuation measures known in the industry will be applied.
4) Plant dust can, if not attenuated by dust screens, transfer point enclosures and drop chutes, cause impact if excessively high dust generation days or periods concurs with high north-north westetely winds or south easterly winds as per Diagram 1.
5) Blasting impact: Ensure the best blasting design layout to ensure that surrounding uses are not adversely affected.
6) Potential for Hydrocarbon pollution will be contained by implementation of the waste and hydrocarbon in para 32.5 “Domestic and industrial waste and hydrocarbon management protocol”

Positive impacts include:

1) Employment for staff (although limited)
2) Supply of material to projects on the National Renewable Energy program
3) Rental income to the landowner
4) Use of the existing site eliminates the disturbance of a virgin site to serve these projects with these material qualities

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 as far as possible limit the disturbances of this project to the disturbed footprints of the site’s earlier use through establishment phase clear beaconing and where necessary fencing of the site to avoid unwarranted movement outside designated areas.
(ii) To wherever possible establish uses within the context of temporary use (e.g containers not buildings and mobile not fixed plant with mobile steel not concrete fuel tank bund) thereby providing for a minimal additional residual impact to that presented by the disturbed existing site.
(iii) To consider and implement industry known attenuation measures to limit operational impacts of dust, noise and hydrocarbon.

(iv) Access to no go areas must be prevented through demarcation and environmental education of all staff members.

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:

- Implementing all specified appropriate measures during establishment to avoid unnecessary disturbances
- 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 a unique opportunity for reuse of an abandoned quarry with minimum additional disturbance to what exists, thereby minimising residual impact.
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 reduces heavy traffic use of the N1 from areas from afar.

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.

2 years renewable to 5 years excluding decommissioning and aftercare phase.

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.

Operational rehabilitation has been catered for in the cash flow forecast in the Technical and Financial Ability report lodged with the EA application. In terms of decommissioning rehabilitation (or the so called Rehabilitation Quantum) the amount to be provided by Bank Guarantee is R334 408.49 including VAT.

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 Contracting International (Pty) Ltd**		
Evaluator:	**Siphumelelo Mbali**	**Location:**	**Beaufort West**
Reference :	**WC 30/5/1/3/2/10289 MP**	**Date:**	**Nov 2021**

Environmental Parameters

Risk Class	C	
Area sensitivity	Medium	
Nature of terrain	Flat	**1200**
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 powerlines) mobile plant	m3	0	R 16.29	1	1	R 0.00
2 (A)	Demolition of steel buildings and structures (mobile containers and ski cabins and steel bunded diesel tank)	Sum	0	R 226.97	1	1	R 50 000.00
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	R 334.48	1	1	R 0.00
3	Rehabilitation of access roads (rip and scarification 80m x 6m access to main gravel road)	m2	480	R 20.31	0.5	1	R 4 874.40
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	R 394.21	1	1	R 0.00
4 (B)	Demolition and rehabilitation of non-electrified railway lines	m	0	R 215.02	1	1	R 0.00
5	Demolition of housing and/or administration facilities	m2	0	R 453.94	1	1	R 0.00
6	Opencast rehabilitation including final voids and ramps	ha	0	R 231 031.93	0.52	1	R 0.00
7	Sealing of shafts adits and inclines	m3	0	R 121.85	1	1	R 0.00
8 (A)	Rehabilitation of overburden and spoils	ha	0	R 158 640.33	1	1	R 0.00
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	R 197 583.66	1	1	R 0.00
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	R 573 876.61	0.66	1	R 0.00
9	Rehabilitation of subsided areas	ha	0	R 132 837.38	1	1	R 0.00
10	General surface rehabilitation (which will include construction of safety berm, rip and scarification of hardenned areas etc)	ha	2.92	R 125 669.90	0.5	1	R 183 478.05
11	River diversions	ha	0	R 125 669.90	1	1	R 0.00
12	Fencing	m	0	R 143.35	1	1	R 0.00
13	Water management	ha	0	R 47 783.23	0.25	1	R 0.00
14	maintenance and aftercare	ha	0	R 16 724.13	1	1	R 0.00
15 (A)	Specialist study	Sum	0	R 28 669.94	1	1	R 0.00
15 (B)	Specialist study	Sum	0	R 28 669.94	1	1	R 0.00
					Sub Total 1		R 238 352.45
1	Preliminary and General		R 28 602.29		**weighting factor 2** 1		R 28 602.29
2	Contingencies			R 23 835.25			R 23 835.25
					Subtotal 2		R 290 789.99
					VAT (15%)		R 43 618.50
					Grand Total		**R 334 408.49**

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 Financial and Technical Ability Report 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:

- Landowner: Positive impact in respect of surface rental and / or other income as a result of the mining.
- Mining Company / Contractor and employees: Guaranteed income for duration of the project and fulfilling the function of material support to the national renewable energy project construction with its own employment and electrical supply to the broader South African community.
- Consumer and parastatal authorities: Guaranteed supply of road construction material to road maintenance programs in this area at competitive prices by elimination of long delivery distances from existing commercial sources

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).

A Notice of Intent to Develop application at HWC will be submitted but final decision of HWC will be awaited and whatever is required will be addressed.

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.

NA

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
Figure 3: Overall Mine (Site) Layout Plan
Figure 4: Excerpt from 2008 Beaufort West Municipal SDF
Figure 5: Surrounding Landowners (Source: Cape Farm Mapper)
Figure 6: Topography of Beaufort West Mining Permit application
Figure 7: Vegetation biomes (Mucina and Rutherford, 2012)
Figure 8: CBA classification map
Figure 9: Surface water characteristics adjacent to the quarry site (Source: Cape Farm Mapper)

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 site environment to it's current quarry state for further development by others. The quarry must be rehabilitated in such a manner that it safe with construction of safety berms at appropriate areas. The overall quarry could also be fenced i.e it is currently open with no proper safety signs

As part of the closure objective rehabilitation, it is important to retain, access road stockpiling area and excavation with un-sloped faces to allow likely reuse of this site in future for similar infrastructure contracts by parastatals or contractors given the unique rock quality and location offered by site.

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 application of fresh crushed and screened stone to roads and maneuvering areas (s which will not powderise under traffic.
b) The application of a commercial dust palliative at quarterly intervals which ionic palliatives bind to the access road to limit dust generation. dust generation in addition to the function of the screened stone layer

It is estimated that water volumes for the operation will be in the order of 20kl/day and thus a General Authorisation will be applied for at the relevant water authority.

To further limit water requirements chemical toilets will be provided.

ii. Potable water

Will be brought to site daily as bottled water by the staff vehicle from Laingsburg

29.4.3 Has a water use licence has been applied for?

As described above, project design at this stage seeks to limit water consumption as above and allowing reliance on the general authorisation of 20kl per day.

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
Application for Mining Permit **1. Establishment Phase**				
1.1. Demarcate use areas and permit boundary using visible poles or alternative demarcation system				
1.2. Use of existing access road available on site.				
1.3. Prepare the plant and stockpiling area for use.				
1.3.1. Air Quality (dust)	Construction upgrade over 0.25	Pre wet site prior to grading Apply dust palliative in final construction. Apply hard screened crushed material	DUST FALL STANDARDS: SANS 1929:2004 & MHSA in respect of Personnel Exposure refer para 32.6	Establishment phase
1.3.2. Hydrocarbon	Potential impact through oil fuel leaks	As per Monitoring and Hydrocarbon Management Protocols	EMP prescriptions in para 32.5	Establishment phase
1.4. Establish logistical facilities including Security Kiosk, Weighbridge facility and Chemical Toilet.				
1.4.1. 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	Establishment phase
1.4.2. Hydrocarbon	Potential impact through oil fuel leaks at point	As per Monitoring and Hydrocarbon Management Protocols	EMP prescriptions in para 32.5	Establishment phase
1.5. Establish steel-bunded diesel tank of <30,000 litres				
1.5.1. 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	Establishment phase

Activity	Nature of Impact and extent	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
1.5.2. Air Quality (dust)	Site preparation	Pre wet site prior to grading Apply dust palliative in final construction. Apply hard screened crushed material	DUST FALL STANDARDS: SANS 1929:2004 & MHSA in respect of Personnel Exposure refer para 32.6	Establishment phase
1.5.3. Hydrocarbon	Potential impact through oil fuel leaks very local	As per Monitoring and Hydrocarbon Management Protocols	EMP prescriptions in para 32.5	Establishment phase
1.6. Establish Processing plant (probably mobile plants to be used)[4]				
1.6.1. Visual	Noticeable from surrounding land uses	None	NA	Establishment phase
1.6.2. 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	Establishment phase
1.6.3. Hydrocarbon	Potential impact through oil fuel leaks very local	As per Monitoring and Hydrocarbon Management Protocols	EMP prescriptions in para 32.5	Establishment phase
1.7. No topsoil removal will be needed as this is a previously mined quarry				
2. Operational Phase				
2.1. Drilling and blasting				
2.1.1. Air Quality (Dust)	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	NA	Operational phase
2.1.2. Noise	Drill rig at point	Periodic	NA	Operational phase
2.1.3. Hydrocarbon	Potential impact through oil fuel leaks very local	As per Monitoring and Hydrocarbon Management Protocols	EMP prescriptions in para 32.5	Operational phase
2.2. Loading and hauling shot rock to mobile crusher using haul road				

Activity	Nature of Impact and extent	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
2.2.1. 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
2.2.2. Air Quality (Dust)	Loading point and haul road vehicle dust	Ensure palliative, crushed rock surfacing is maintained and 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
2.2.3. Hydrocarbon	Potential impact through oil/fuel leaks	As per Monitoring and Hydrocarbon Management Protocols	EMP prescriptions in para 32.5	LOM
2.3. Crushing and screening.				
2.3.1. Noise	Equipment	Consider enclosing primary with rubber conveyor belting	NOISE: SANS 0103-1983 & MHSA in respect of Personnel Exposure	LOM
2.3.2. Air Quality (Dust)	Crushing and screening	Shade cloth enclosure of primary hopper and enclosed transfer points and chutes on stockpile conveyor drop points	DUST FALL STANDARDS: SANS 1929:2004 & MHSA in respect of Personnel Exposure refer para 32.6	LOM
2.3.3. Hydrocarbon	Potential impact through oil/fuel leaks	As per Monitoring and Hydrocarbon Management Protocols	EMP prescriptions in para 32.5	LOM
2.4. Loading and hauling crushed material to stockpile.				
2.4.1. Noise	Loader and haul 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
2.4.2. Air Quality (Dust)	Loading point and haul road vehicle dust	Ensure palliative, crushed rock surfacing is maintained and 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
2.4.3. Hydrocarbon	Potential impact through oil/fuel leaks	As per Monitoring and Hydrocarbon Management Protocols	EMP prescriptions in para 32.5	LOM
2.5. Dispatch loading of delivery vehicles.				
2.5.1. 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

Activity	Nature of Impact and extent	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
2.5.2. 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
2.5.3. Hydrocarbon	Potential impact through oil/fuel leaks	As per Monitoring and Hydrocarbon Management Protocols	EMP prescriptions in para 32.5	LOM
2.6. Delivery along delivery route				
2.6.1. Air Quality (Dust)	Vehicle dust on gravel road	Apply wetting on delivery road	DUST FALL STANDARDS: SANS 1929:2004 & MHSA in respect of Personnel Exposure refer para 32.6	LOM
2.7. Conduct dust suppression on haul roads and plant.				
2.8. Refuelling and hydrocarbon management.				
3. Decommissioning Phase				
3.1. Remove all plant, structures and logistical facilities.				
3.1.1. Hydrocarbon	Potential impact through oil/fuel leaks	As per Monitoring and Hydrocarbon Management Protocols	EMP prescriptions in para 32.5	Decommissioning
3.2. Consolidate retained stock neatly in designated area.				
3.3. Rip/scarify hardened/compacted surface of plant and stockpiling area and access road if required.				
3.3.1. 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	Decommissioning
3.3.2. Air Quality (Dust)	Construction	Pre wetting	DUST FALL STANDARDS: SANS 1929:2004 & MHSA in respect of Personnel Exposure refer para 32.6	Decommissioning
3.3.3. Hydrocarbon	Potential impact through oil/fuel leaks	As per Monitoring and Hydrocarbon Management Protocols	EMP prescriptions in para 32.5	Decommissioning

Activity	Nature of Impact and extent	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
3.4. Construct safety berm and trench around excavation perimeter when needed				
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	Decommissioning
3.4.2. Air Quality (Dust)	Equipment making dust	Pre wetting	DUST FALL STANDARDS: SANS 1929:2004 & MHSA in respect of Personnel Exposure refer para 32.6	Decommissioning
3.4.3. Hydrocarbon	Potential impact through oil/fuel leaks	As per Monitoring and Hydrocarbon Management Protocols	EMP prescriptions in para 32.5	Decommissioning
3.5. Conduct final performance assessment for closure.				
3.6. Lodge Closure Application				
3.7. Allow quarry floor to flood as a reed bed during the rainy season (retain haul road for access to floor) with potential for further mining of quarry floor in future contracts				
4. Aftercare Period				
4.1. Remove alien vegetation if present				
4.2. Monitor revegetation success, with follow-up seeding if required. Allow natural re-seeding by windblown seed following aftercare period.				

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 **Application for Mining Permit** **1. 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.**
1.1. Demarcate use areas and permit boundary using visible poles or alternative demarcation system		
1.2. Use of existing access road available on site.		
1.3. Prepare the plant and stockpiling area for use.		
1.3.1. Air Quality (dust)	Pre wetting by water cart	Standard water cart practise
1.3.2. Hydrocarbon	Monitor and control through hydrocarbon management protocol refer 32.5	Avoidance and mitigation
1.4. Establish logistical facilities including Security Kiosk, Weighbridge facility and Chemical Toilet.		
1.4.1. Noise	Ensure equipment silencers are working properly	Ensure noise threshold standards are not breached
1.4.2. Hydrocarbon	Monitor and control through hydrocarbon management protocol refer 32.5	Avoidance and mitigation
1.5. Establish steel-bunded diesel tank of <30,000 litres		
1.5.1. Noise	Ensure equipment silencers are working properly	Ensure noise threshold standards are not breached
1.5.2. Air Quality (dust)	Pre wetting by water cart	Standard water cart practise
1.5.3. Hydrocarbon	Monitor and control through hydrocarbon management protocol 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.
1.6. Establish Processing plant (probably mobile plants to be used)[5]		
1.6.1. Visual	None	None
1.6.2. Noise	Ensure equipment silencers are working properly	Ensure noise threshold standards are not breached
1.6.3. Hydrocarbon	Monitor and control through hydrocarbon management protocol refer 32.5	Avoidance and mitigation
1.7. No topsoil removal will be needed as this is a previously mined quarry		
2. Operational Phase		
2.1. Drilling and blasting		
2.1.1. Air Quality (Dust)	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
2.1.2. Noise	None	None
2.1.3. Hydrocarbon	Monitor and control through hydrocarbon management protocol refer 32.5	Avoidance and mitigation
2.2. Loading and hauling shot rock to mobile crusher using haul road		
2.2.1. Noise	Ensure equipment silencers are operational	Noise level standards not breached
2.2.2. Air Quality (Dust)	Dust palliative and hard crushed material cover and periodic wetting of manoeuvring area	Dust level standard not breached
2.2.3. Hydrocarbon	Monitor and control through hydrocarbon management protocol refer 32.5	Avoidance and mitigation
2.3. Crushing and screening.		
2.3.1. Noise	Consider enclosing primary with rubber conveyor belting	Noise 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.
2.3.2. Air Quality (Dust)	Shade cloth enclosure of primary hopper and enclosed transfer points and chutes on stockpile conveyor drop points. Visually monitor plant dust under north west wind and stop plant if impact occurs	Dust level standard not breached
2.3.3. Hydrocarbon	As per Monitoring and Hydrocarbon Management Protocols refer 32.5	Avoidance and mitigation
2.4. Loading and hauling crushed material to stockpile.		
2.4.1. Noise	Ensure equipment silencers are operational	Noise level standards not breached
2.4.2. Air Quality (Dust)	Dust palliative and hard crushed material cover and periodic wetting of manoeuvring area	Dust level standard not breached
2.4.3. Hydrocarbon	Monitor and control through hydrocarbon management protocol refer 32.5	Avoidance and mitigation
2.5. Dispatch loading of delivery vehicles.		
2.5.1. Noise	Ensure equipment silencers are operational	Noise level standards not breached
2.5.2. Air Quality (Dust)	Dust palliative and hard crushed material cover and periodic wetting of maneuvering area	Dust level standard not breached
2.5.3. Hydrocarbon	Monitor and control through hydrocarbon management protocol refer 32.5	Avoidance and mitigation
2.6. Delivery along delivery route		
2.6.1. Air Quality (Dust)	Manage through wetting of road and covering of loads	Dust level standard not breached
2.7. Conduct dust suppression on haul roads and plant.		
2.8. Refuelling and hydrocarbon management.		
3. Decommissioning Phase		
3.1. Remove all plant, structures and logistical facilities.		
3.1.1. Hydrocarbon	Monitor and control through hydrocarbon management protocol refer 32.5	Avoidance and mitigation
3.2. Consolidate retained stock neatly in designated 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.
3.3. Rip/scarify hardened/compacted surface of plant and stockpiling area and access road if required.		
3.3.1. Noise	Ensure equipment silencers are operational	Noise level standards not breached
3.3.2. Air Quality (Dust)	Manage by pre wet before commencement	Dust level standard not breached
3.3.3. Hydrocarbon	Monitor and control through hydrocarbon management protocol refer 32.5	Avoidance and mitigation
3.4. Construct safety berm and trench around excavation perimeter when needed		
3.4.1. Noise	Ensure equipment silencers are operational	Noise level standards not breached
3.4.2. Air Quality (Dust)	Manage by pre wet before commencement if necessary	Dust level standard not breached
3.4.3. Hydrocarbon	Monitor and control through hydrocarbon management protocol refer 32.5	Avoidance and mitigation
3.5. Conduct final performance assessment for closure.		
3.6. Lodge Closure Application		
3.7. Allow quarry floor to flood as a reed bed during the rainy season (retain haul road for access to floor) with potential for further mining of quarry floor in future contracts		
4. Aftercare Period		
4.1. Remove alien vegetation if present		
4.2. 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).

The management of environmental damage as a result of this undertaking consists of the following with detail description below:

1) Demarcation of excavation extent as per para 32.1 below
2) Topsoil handling as per para 32.2 and 32.3 below (Topsoil handling methodology)
3) vegetation and animal life management protocol as per para 32.3
4) Excavation perimeter shaping and rehabilitation as contained in para 32.4 below
5) Hydrocarbon pollution prevention must take place in accordance with the Hydrocarbon pollution prevention protocol in para 32.5 below.
6) Dust management protocol in Para 32.6

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

A set of posts must be securely placed to demarcate the Excavation Areas. These posts 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

Given that no topsoil existing for removal and storing in perimeter berms. Therefore no prescriptions are set.

32.3 Vegetation and Animal life protocol Methodology

No natural vegetation is going to be disturbed by the proposed activities. All slow moving animals must be searched for and moved before activities commence.

32.4 Excavation perimeter shaping and rehabilitation

As the excavation is identified for further use under a future contract given its rock quality and suitable location, the excavation perimeter faces are not identified for sloping but retained for future face advance by blasting. A safety bench may constructed to ensure safety (see photo 5 below). However, it must be noted that the quarry is still going to be used by others in the future.

Photo 5: Typical perimeter safety bench during hard-rock quarry rehabilitation

32.5 Domestic and Industrial Waste and Hydrocarbon Management Protocol

Note that there will be minimal volumes of domestic and industrial waste emanating from this excavation operation; however the following must to be implemented.

The waste streams that could potentially emanate from this site:

Domestic Waste handling

A mobile containerised office/store will be placed on site for the duration of mining activities. All on-site personnel must be trained to keep their domestic waste (ie lunch wrappers, cigarette boxes, etc.,) at such facilities, and dispose of all domestic waste in dedicated waste bins. All domestic waste should be regularly removed from the site and be transferred to a suitable receptacle off-site until final disposal.

Sewage handling

There are to be chemical 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.

Hydrocarbon Management

While fuel may be dispatched from the Applicant's main logistical facilities to refill the mining area equipment, and while maintenance vehicles will similarly visit the site on a daily basis, a mobile on-site bunded diesel tank of not exceeding 30 000l may be provided adjacent to the containerized office/store should it be required, and is included as a hydrocarbon management option.

a) Possible Bunded Diesel Tank

A tank of less than 30 000L capacity in preferably a steel bund (refer photo below).

Photo 11: Steel bunded diesel tank of less than 30 000L

The diesel tank shall be provided with a concreted or suitable impermeable apron on which any diesel spills should be decontaminated from time to time.

Diesel delivery drivers shall be cautioned to drive carefully on the quarry access road to avoid accidental diesel spillage.

A commercial diesel treatment product such as Spillsorb^{tm} shall be kept on site and responsible staff shall be instructed in its use.

b) Vehicle /pump leaks:

Vehicles and equipment must be checked on a daily basis for oil/diesel/hydraulic fluid leaks. Drip trays must be available on site and should any oil/fuel/lubricant leak from the equipment, then such leaked fluid is to be collected via the drip trays into drums for transport to Oilkol or similar contractor/depot for recycling.

Should such leaked oil contaminate the topsoil, then such topsoil and oil must be removed from site and spread on a concreted area where it can be treated with a commercial product such as Spillsorb^{tm}.

c) *On-site repairs:* All repairs other than minor repairs (such as replacement of hydraulic hoses etc. and daily greasing and oil top-up) will take place off-site in the workshop at the applicant's main logistical facilities which will serve the renewable energy construction activities or in Laingsburg.

d) Emergency repairs on site:

In the event of a breakdown repair being required in the field, 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.

In addition:

- Used/replaced filters, hoses, belts, cloths, etc. are to be placed in the bins marked specifically for industrial waste at the Mobile site store container for removal from site

and disposal through the contractor's main workshop on the wind farm project site. Used filters are not to be buried at the site of repair (nor discarded in adjacent veld).

- In the event of accidental intense soil contamination, the contaminated soils are to be removed and placed in suitable bags or drums for disposal at a licensed facility or depot, and any remnant contamination to be treated with the appropriate commercial decontaminant in the Spillsorb^{tm} or other range.

e) Staff training and awareness

All staff involved in mobile plant operation and maintenance are to be made aware of these oil and lubricant procedures. Staff will be given environmental induction training on the:

- Deleterious effects of oil / fuel on the environment
- Handling of oil leaks onto soil

e) <u>General Provisions</u>

- All operators are to check their equipment for leaks and report such leaks on a daily basis. All equipment and vehicles will be maintained in good working order.
- No used oils are to be used as dust suppressants on maneuvering areas.
- All heavy vehicles where parked overnight will have drip trays.
- If spills do occur on the sand, absorbent material such as Drizit or wood shavings are to be placed on top of the spill and removed to waste drums and then to the contractor's yard; this must be disposed of at a suitable hazardous waste facility.
- All contaminated soil/material must also be removed and disposed of or treated with a suitable treatment process.
- Protective gear must be used during clean-up of spills.
- 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 site is adjacent potential sensitive environment with subsistence farming and water purification plant as adjacent land uses.

Consequently, the following dust attenuation actions should be taken:

i. Prior to any grading/dozing such activity area shall be pre-wet by water cart
ii. During use of roads and maneuvering areas, to periodically wet these areas by water cart
iii. In order to control plant generated dust the following attenuation measures should be applied:

- Shade cloth enclosure of primary hopper
- enclose transfer points within the plant; and
- provide rubber panel chutes for conveyor drop points onto stockpiles

iv. Monitoring of dust should be undertaken by placement of dustwatch systems and further measure be put in place should dust be a nuisance.

32.7 Drilling and blasting management

Drilling and blasting can potential have a significant impact if not managed properly.

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

a) The quarry manager will notify adjacent landowners/managers 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
d) 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

Nonetheless it is important to note that in terms of Mine Health and Safety Act Explosives Regulations, 2018 – Regulation 4.16 (2) a blasting approval will have to be applied for before any blasting can take place as there are structures that are less that 500m from within blasting distance. Therefore, unless such approval is in place, no blasting should take place.

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 site environment to it's current quarry state for further development by

others. The quarry must be rehabilitated in such a manner that it safe with construction of safety berms at appropriate areas. The overall quarry could also be fenced i.e it is currently open with no proper safety signs

As part of the closure objective rehabilitation, it is important to retain, access road stockpiling area and excavation with un-sloped faces to allow likely reuse of this site in future for similar infrastructure contracts by parastatals or contractors given the unique rock quality and location offered by site

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.

CALCULATION OF THE QUANTUM

Applicant :	**Afrimat Contracting International (Pty) Ltd**		
Evaluator:	**Siphumelelo Mbali**	**Location:**	**Beaufort West**
Reference :	**WC 30/5/1/3/2/10289 MP**	**Date:**	**Nov 2021**

Environmental Parameters

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

1200

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 powerlines) mobile plant	m3	0	R 16.29	1	1	R 0.00
2 (A)	Demolition of steel buildings and structures (mobile containers and ski cabins and steel bunded diesel tank)	Sum	0	R 226.97	1	1	R 50 000.00
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	R 334.48	1	1	R 0.00
3	Rehabilitation of access roads (rip and scarification 80m x 6m access to main gravel road)	m2	480	R 20.31	0.5	1	R 4 874.40
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	R 394.21	1	1	R 0.00
4 (B)	Demolition and rehabilitation of non-electrified railway lines	m	0	R 215.02	1	1	R 0.00
5	Demolition of housing and/or administration facilities	m2	0	R 453.94	1	1	R 0.00
6	Opencast rehabilitation including final voids and ramps	ha	0	R 231 031.93	0.52	1	R 0.00
7	Sealing of shafts adits and inclines	m3	0	R 121.85	1	1	R 0.00
8 (A)	Rehabilitation of overburden and spoils	ha	0	R 158 640.33	1	1	R 0.00
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	R 197 583.66	1	1	R 0.00
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	R 573 876.61	0.66	1	R 0.00
9	Rehabilitation of subsided areas	ha	0	R 132 837.38	1	1	R 0.00
10	General surface rehabilitation (which will include construction of safety berm, rip and scarification of hardenned areas etc)	ha	2.92	R 125 669.90	0.5	1	R 183 478.05
11	River diversions	ha	0	R 125 669.90	1	1	R 0.00
12	Fencing	m	0	R 143.35	1	1	R 0.00
13	Water management	ha	0	R 47 783.23	0.25	1	R 0.00
14	maintenance and aftercare	ha	0	R 16 724.13	1	1	R 0.00
15 (A)	Specialist study	Sum	0	R 28 669.94	1	1	R 0.00
15 (B)	Specialist study	Sum	0	R 28 669.94	1	1	R 0.00
					Sub Total 1		R 238 352.45
1	Preliminary and General		R 28 602.29		**weighting factor 2** 1		R 28 602.29
2	Contingencies		R 23 835.25				R 23 835.25
					Subtotal 2		R 290 789.99
					VAT (15%)		R 43 618.50
					Grand Total		**R 334 408.49**

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
Application for Mining Permit **1. Establishment Phase**			
1.1. Demarcate use areas and permit boundary using visible poles or alternative demarcation system			
1.2. Use of existing access road available on site.			
1.3. Prepare the plant and stockpiling area for use.			
1.3.1. Air Quality (dust)	Visual monitoring of dust direction (and volume)	Site establishment contractors, Mine manager	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
1.3.2. Hydrocarbon	Ensure no vehicle or equipment leaks. Ensure that all fuel transfer equipment is correct and present.	Establishment contractor, Manager, Operator	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
1.4. Establish logistical facilities including Security Kiosk, Weighbridge facility and Chemical Toilet.			
1.4.1. Noise	Ensure vehicle silencers are in place. No work or heavy vehicle movement after working hours and on weekends	Site establishment contractors, 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
1.4.2. Hydrocarbon	Ensure no vehicle or equipment leaks. Ensure that all fuel transfer equipment is correct and present.	Establishment contractor, Manager, Operator	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
1.5. Establish steel-bunded diesel tank of <30,000 litres			
1.5.1. Noise	Ensure vehicle silencers are in place. No work or heavy vehicle movement after working hours and on weekends	Site establishment contractors, Mine manager	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
1.5.2. Air Quality (dust)	Visual monitoring of dust direction (and volume)	Site establishment contractors, Mine manager	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
1.5.3. Hydrocarbon	Ensure no vehicle or equipment leaks. Ensure that all fuel transfer equipment is correct and present.	Establishment contractor, Manager, Operator	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
1.6. Establish Processing plant (probably mobile plants to be used)[6]			
1.6.1. Visual	None	None	None
1.6.2. Noise	Ensure vehicle silencers are in place. No work or heavy vehicle movement after working hours and on weekends	Site establishment contractors, Mine manager	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
1.6.3. Hydrocarbon	Ensure no vehicle or equipment leaks. Ensure that all fuel transfer equipment is correct and present.	Establishment contractor, Manager, Operator	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
1.7. No topsoil removal will be needed as this is a previously mined quarry			

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. Operational Phase			
2.1. Drilling and blasting			
2.1.1. Air Quality (Dust)	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
2.1.2. Noise	Install blast vibro recorder for blast vibration and noise level recorder during each blast. Check that ear protection is being applied by the operator.	Mine Manager and safety officer	Per each drilling and blast
2.1.3. 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.
2.2. Loading and hauling shot rock to mobile crusher using haul road			
2.2.1. 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.
2.2.2. Air Quality (Dust)	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.
2.2.3. 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.
2.3. Crushing and screening.			
2.3.1. Noise	Check that ear protection is being applied by the operator (noise level monitoring will be periodically done in terms of the health act)	contractors, 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
2.3.2. Air Quality (Dust)	1) Visual monitoring of dust direction (and volume) 2) If install dust monitoring system to monitor dust levels 3) During high north west wind periods and observed high plant dust levels, the level of dust in the plume which may reach the N1 must be checked and if it poses any interference with the safety of N1 road traffic the plant must immediately be switched off until there is a change in wind direction	Production manager/Mine manager	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
2.3.3. Hydrocarbon	Ensure no equipment leaks. Ensure that all fuel transfer equipment is correct and present.	contractor, Manager, Operator	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
2.4. Loading and hauling crushed material to stockpile.			
2.4.1. 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.
2.4.2. Air Quality (Dust)	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.
2.4.3. 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.
2.5. Dispatch loading of delivery vehicles.			
2.5.1. 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.

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
2.5.2. Air Quality (Dust)	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.
2.5.3. 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.
2.6. Delivery along delivery route			
2.6.1. Air Quality (Dust)	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.
2.7. Conduct dust suppression on haul roads and plant.			
2.8. Refuelling and hydrocarbon management.			
3. Decommissioning Phase			
3.1. Remove all plant, structures and logistical facilities.			
3.1.1. 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.
3.2. Consolidate retained stock neatly in designated area.			
3.3. Rip/scarify hardened/compacted surface of plant and stockpiling area and access road if required.			
3.3.1. 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.

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
3.3.2. Air Quality (Dust)	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.
3.3.3. 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.
3.4. Construct safety berm and trench around excavation perimeter when needed			
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)	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.
3.4.3. 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.
3.5. Conduct final performance assessment for closure.			
3.6. Lodge Closure Application			
3.7. Allow quarry floor to flood as a reed bed during the rainy season (retain haul road for access to floor) with potential for further mining of quarry floor in future contracts			
4. Aftercare Period			
4.1. Remove alien vegetation if present			

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

Environmental audit report to be submitted on following milestones:

a. 6 months after mining has commenced
b. Annually
c. Just prior to decommissioning rehabilitation
d. 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 at monthly staff meetings 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 environmental assessment practitioner

Afrimat Shared Services (Pty)
Name of company

29 November 2021
Date