



**mineral resources**

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Reference:  
Date:

EC/30/5/1/3/3/2/1/0422 EM  
09 March 2010

*Kateyo Makayane*

South African Heritage Resources Agency  
P.O. Box 758  
**GRAHAMSTOWN**  
6140

*Case ID: 2163*

ATTENTION: MR. T. LUNGILE

Sir

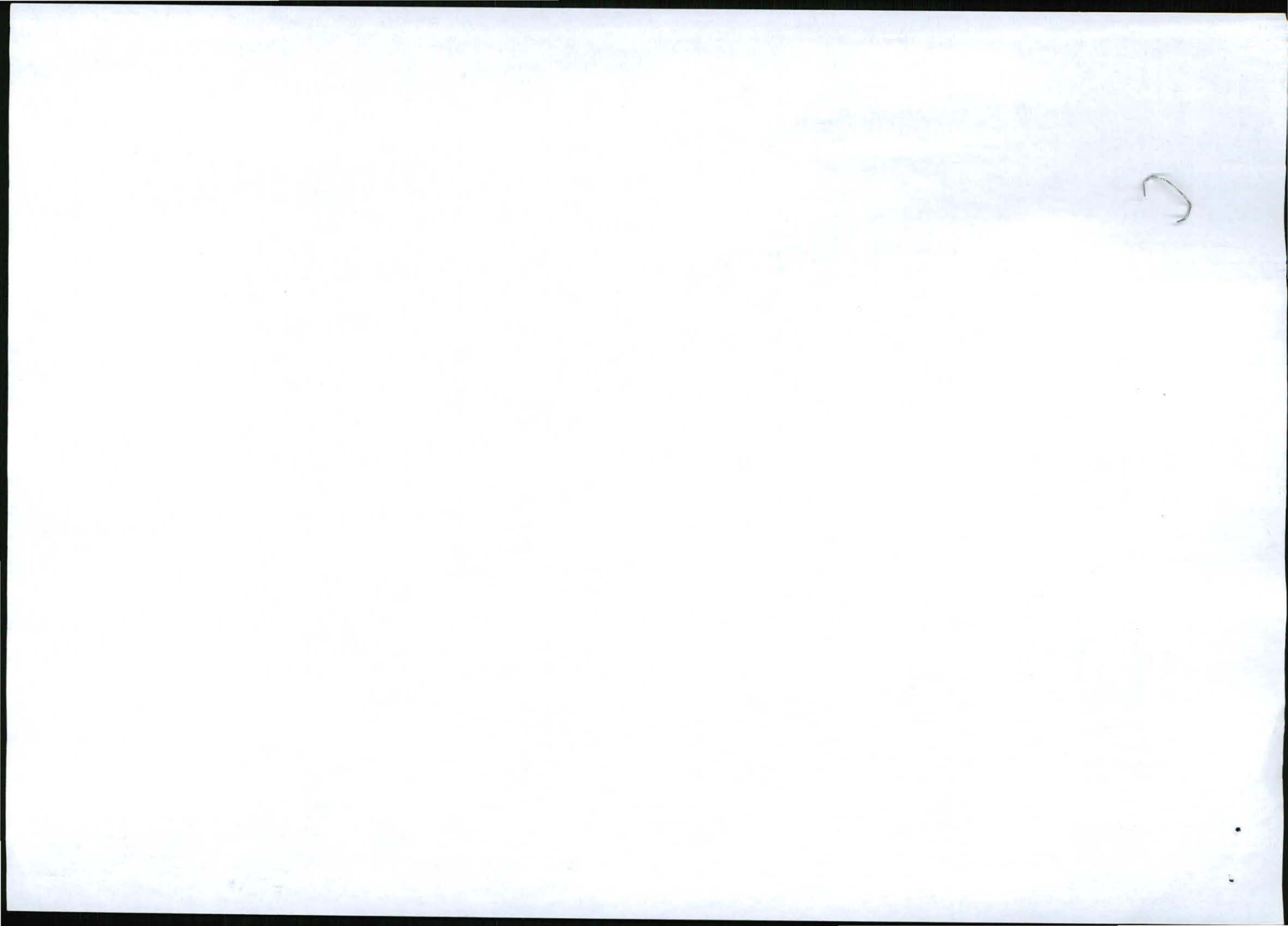
**CONSULTATION IN TERMS OF SECTION 40 OF THE MPRDA OF 2002: MINING PERMIT FOR STONE; AGGREGATE AND GRAVEL MINING ON THE REMAINDER OF PORTION 2 OF THE FARM MENTORS KRAAL NO 336, DIVISION OF HUMANSDORP, EASTERN CAPE.**

1. Attached herewith, please find a copy of the EMP received from . Mr PW Hancke
2. Please forward any written comments or requirements your department may have in this regard, to this office no later than **08 May 2010**. Failure to do so, will lead to the assumption that your department has no objection(s) or comments with regard to the said documents.
3. Consultation in this regard has also been initiated with other relevant State Departments.
4. Please use the reference numbers as indicated in all future correspondence.
5. Your co-operation is appreciated.

Yours faithfully

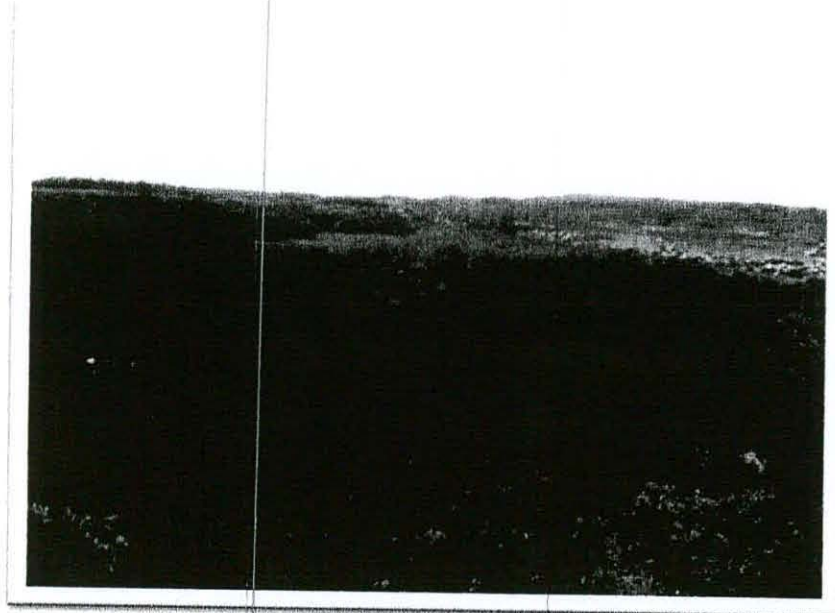
*M. Mtseu*

**REGIONAL MANAGER  
EASTERN CAPE**





PRELIMINARY HERITAGE IMPACT ASSESSMENT



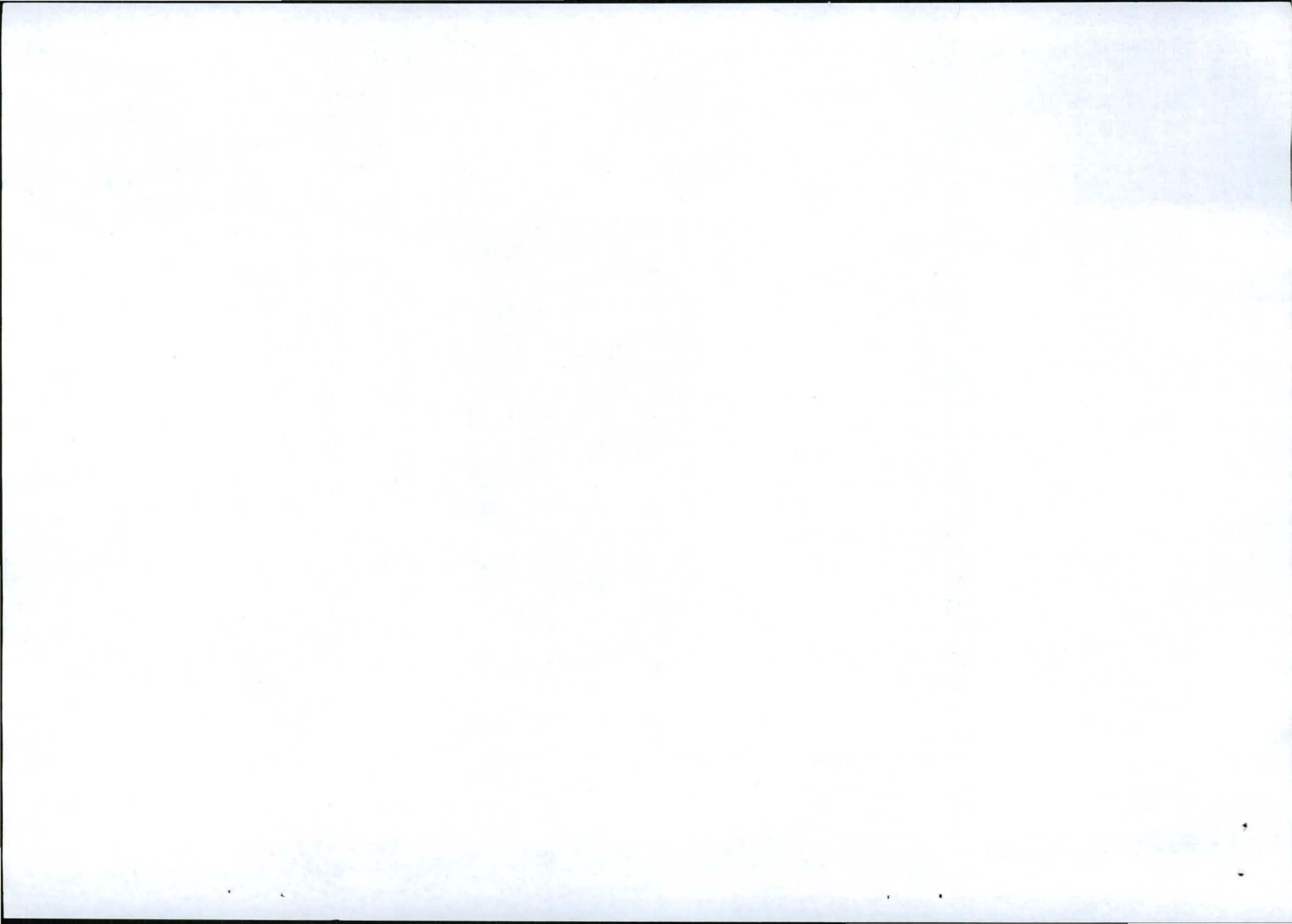
**PREPARED FOR:**

**MENTOORSKRAAL FAMILY TRUST**

**P O BOX 108**

**JEFFREYSBAY**

**6330**



## INTRODUCTION AND BACKGROUND

The applicant, headed by Mrs. J.P.J. Hancke, is involved in Real Estate development. The proposed mining site and immediate surrounds is earmarked for future development as either residential or retail properties and will require a flat and stable platform. Currently the proposed mining area constitutes a ridge on the landscape with land falling away on the western and eastern sides. In order to achieve the mentioned goal it is essential that any future mining must be conducted from the northern property fence towards the south and that old sites be levelled, which will be achieved through ripping and limited blasting. In addition, the applicant is also involved in construction/upgrading of minor access roads and requires weathered sandstone for this purpose.

The Jeffreys Bay and Humansdorp area experiences currently an extensive shortage of weathered sandstone material for development of small enterprises, shopping malls and residential developments. Currently there is no weathered sandstone quarry in the Jeffreys Bay area as the town only disposes of a sandstone conglomerate quarry producing aggregate on the farm Vlakteplaas, 8km east of Jeffrey's Bay. It is therefore essential that this weathered sandstone material be made available to construction and building contractors in the area, as this material has to be transported at high costs from far away sites outside Humansdorp and Port Elizabeth.

Currently the closest registered quarry concern that can produce similar material is situated more than 15km east of Jeffrey's Bay, but only in limited quantities as the reserves of Swartenbosch Quarry constitute mainly massive quartzitic sandstone. The poor availability of weathered sandstone therefore guarantees a large market which in turn will ensure a financial sustainable quarry concern. The development activities of the Trust will also benefit extensively from the legalization of the quarry.

Since the site is earmarked for future development, the area applied for will not be mined to greater depth and additionally the rock becomes almost solid below 5m. The applicant is not interested in entering the aggregate market. However, if Dendron Quarries manages to secure a niche market, it is the agreement that the applicant will apply for a mining right on the historic mined out areas, with the end objective to establish the flat platform for development proposes.

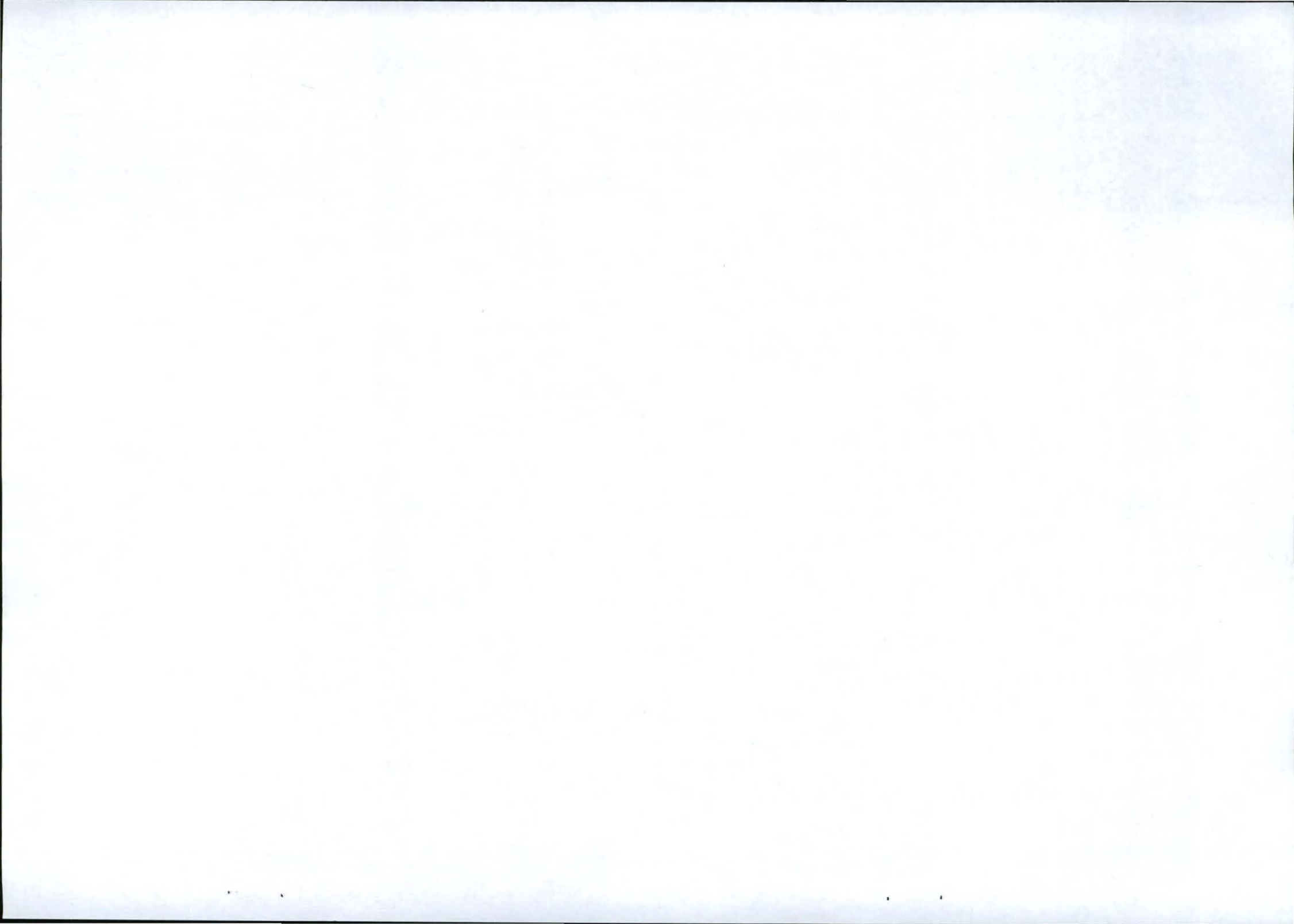
## PERSONAL PARTICULARS OF THE APPLICANT

### APPLICANT

Mentorskraal Family Trust  
P O Box 108  
Jeffrey's Bay  
6330

Tel: 042 293 2740

Fax No. 042 0293 2561



**SURFACE OWNER**

Mentorskraal Family Trust  
P O Box 108  
Jeffrey's Bay  
6330

Tel: 042 293 2740

Fax No. 042 293 2561

**TITLE DEED DESCRIPTION**

Portion 2 of the Farm Mentorskraal 336, Humansdorp division.

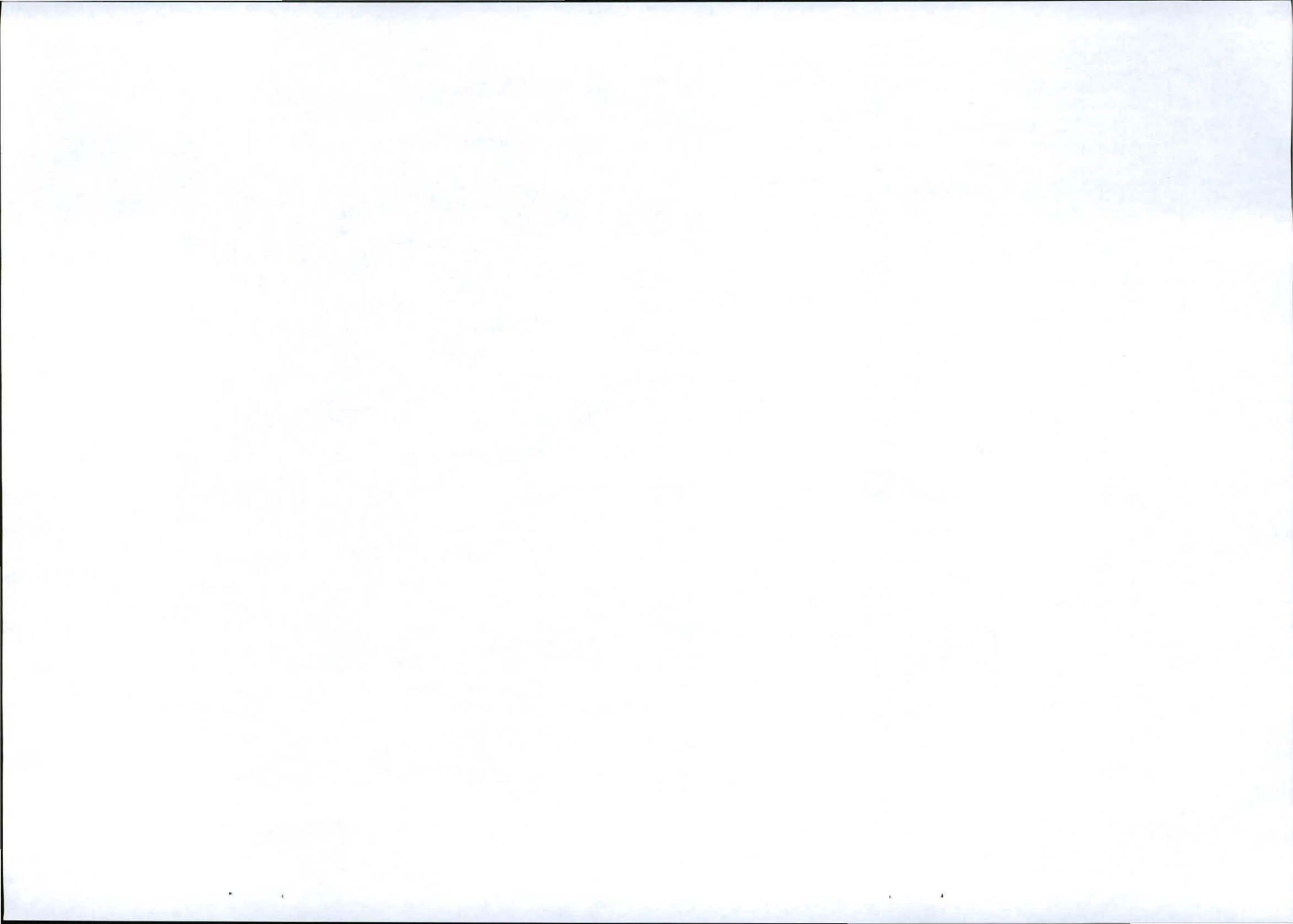
**LAND DESCRIPTION / INFORMATION**

**REGIONAL SETTING**

The proposed quarry is situated in the magisterial district of Humansdorp and is under control of the Kouga Municipality. The quarry is situated approximately 3.7 km north-west of Jeffrey's Bay and 300m north from the N2. The site is situated in a rural area surrounded by small farms.



**Figure 1: Mine Locality**





The first step in the mining process will be the removal of topsoil and storage thereof on the northern perimeter of each mining phase. This will be followed by the removal of the red gravel horizon (1,5m) that will mostly be used for internal road construction on the farm and properties developed by the Trust. The red gravel material will be excavated by excavator and directly loaded on tipper trucks to road construction sites or stockpiled onsite for later use during the development of this portion of the farm. The next phase will comprise the ripping of moderately weathered sandstone to a depth where refusal conditions are experienced (1,5m). The material will be stockpiled for use at the Trust's development sites and sale to Dendron Quarries, which will secondary crush the material at an offsite premises to specification but crushing will depend on the degree of weathering of the material. The final activity will be the drilling of boreholes to a depth of approximately 3m and charged with small amounts of explosives to improve the penetrability of the material. The material will be sold to Dendron Quarries for single stage off-site crushing. Some of this material will be bought back from Dendron Quarries.

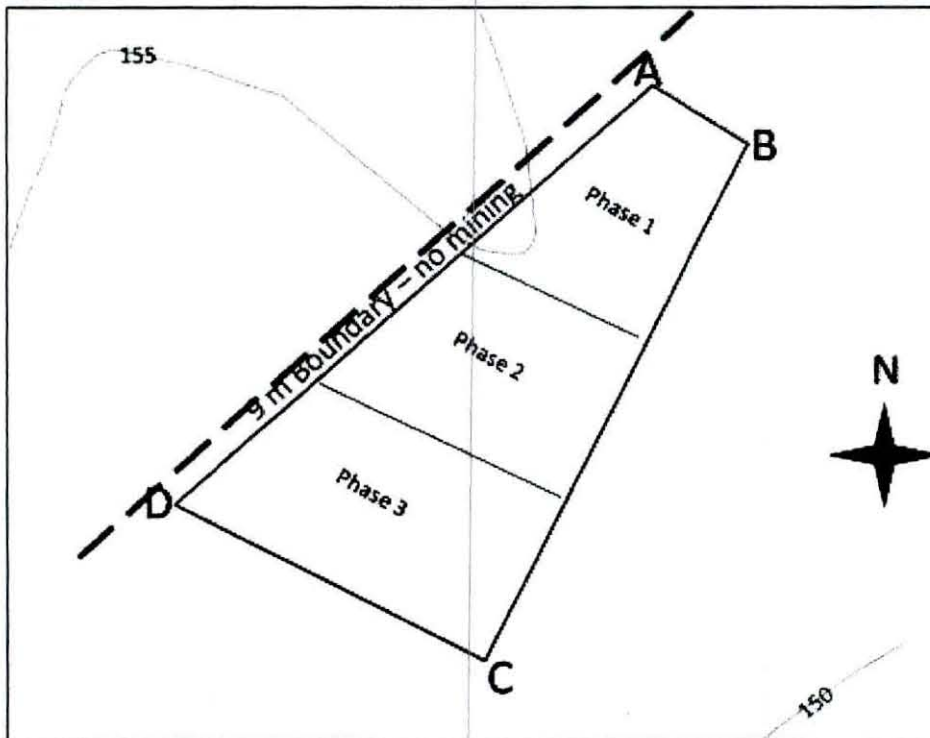
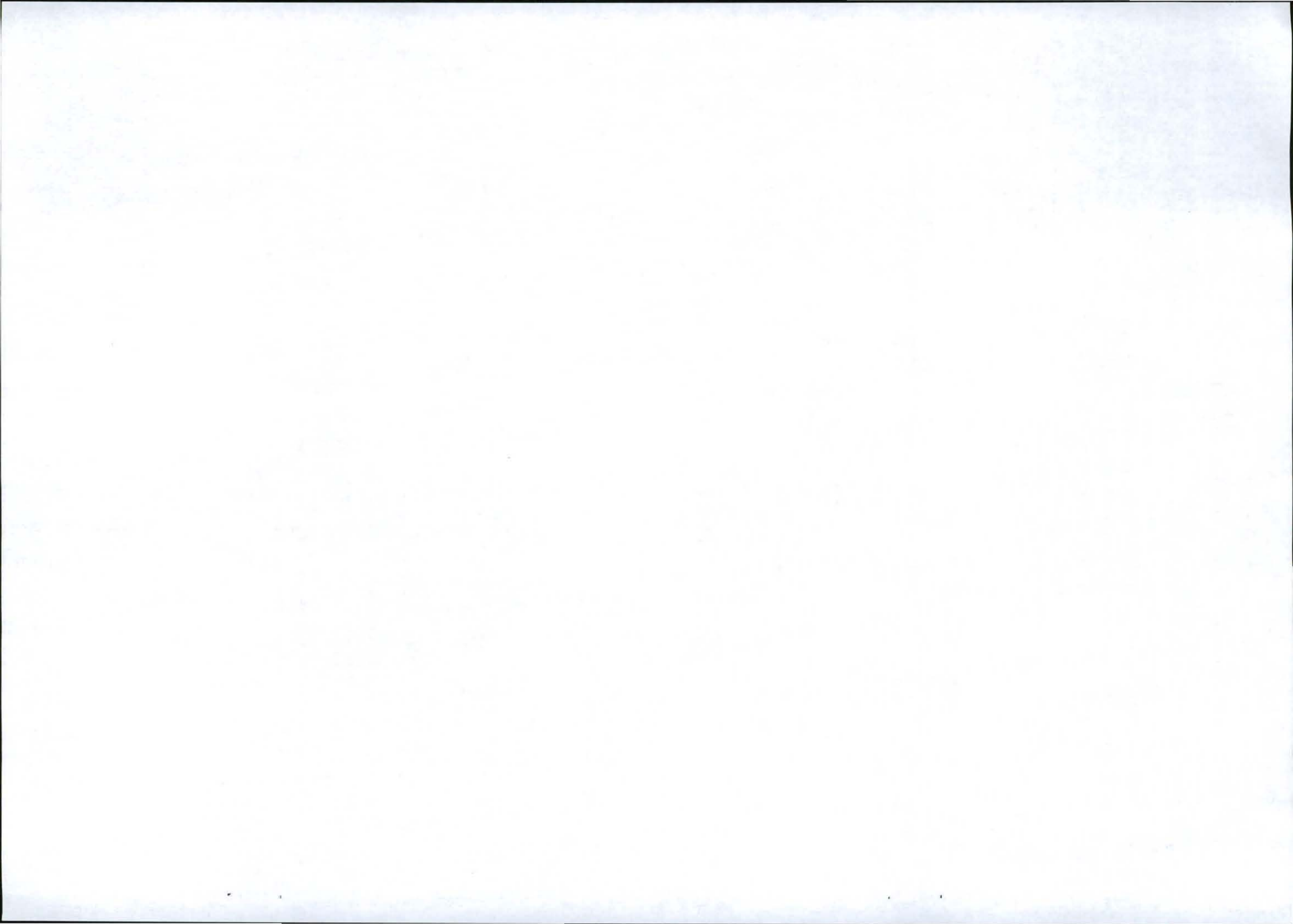


Figure 2: Mine layout plan

CONSTRUCTION PHASE

Construction activities will involve the removal of a limited amount of topsoil and grass cover that will be stored on the western and northern boundaries of the site.

The Jeffrey's Bay road will be used as service road and access will be from it. The both the access and the public road are in very good condition and does not required any upgrading.



No office infrastructure will be established in the mining area. No Eskom and Telkom service points are required. No weighbridge will be constructed and material removed will be sold per volume to prospective clients. No hydrocarbon storage facilities will be constructed since refuelling will be in town. Waste disposal will be through depositing waste in strategically positioned containers fitted with scavenger proof lids and will be removed on a regular basis.

## GEOLOGY

Both the old and the new mining site are underlain by quartzitic sandstone of the Skurweberg Formation of the Table Mountain Group of the Cape Supergroup. According to the geological map (3324 Port Elizabeth) published by the Council for Geoscience the study area is underlain by quartzitic sandstone bedrock of the Skurweberg Formation with feldspathic sandstone and shale of the Baviaanskloof Formation to the north-east and south-west. Both of these formations form part of the Table Mountain Group of the Cape Supergroup.

Jeffreys Bay is located on the eastern limb of a large syncline (n-shaped fold) that plunges towards the south-east (seawards). The outcrop encountered in the study area represents the higher-lying central component of this regional anticline and includes the oldest stratigraphic unit (i.e. the Skurweberg Formation footprint) in the area.

The fold nose to the south-east of the study area represents an area characterized by a high fracture density and makes perfect sense from a structural geological perspective to sight groundwater boreholes. The break in slope associated with the above geological formations (and considerable variation in topography and weathering profile) is also a very good setting for the development of springs and seeps, which would be very active after significant wet conditions. Such break in slopes and natural springs were not noted in the vicinity of the Mentorskraal Quarry during the site investigation.

The Table Mountain Group rocks along the Kouga coastline have been eroded by marine action during palaeo sea levels to form a relatively flat marine terrace, which slopes marginally seawards. The geomorphological terrain, therefore, is characterized by a regional, gentle south-easterly sloping terrace. The regional topographic profile across the study area is dominated by the higher-lying, erosion resistant Skurweberg Formation, which forms the prominent high ground in the region. The shallow weathering profile of this Skurweberg Formation is the target material at Mentorskraal Quarry.

## SKURWEBERG FORMATION

The Skurweberg Formation of the Nardouw Subgroup, Table Mountain Group of the Cape Supergroup dominates the high-lying ground on the north-western outskirts of Jeffreys Bay and the study area. This formation generally comprises a thickly bedded, medium to coarse-grained, white weathering quartzitic sandstone with thicknesses of up to 400 metres in the region.

This formation is easily identified in the study area as the topographical high ground and short Grassy Fynbos vegetation cover. It appears to have an orange-brown and red-brown weathering profile with highly weathered outcrop exposed at depths of between 0,3 and 2,0 metres below surface at



Mentorskraal Quarry.

#### BAVIAANSKLOOF FORMATION

The Baviaanskloof Formation, also of the Nardouw Subgroup, Table Mountain Group of the Cape Supergroup, occurs to the north-east and south-west of Mentorskraal Quarry and is generally associated with the negatively weathering outcrop (i.e. lower topographical profile). Previous investigations in this material in the Jeffreys Bay area have revealed clayey material (completely weathered sandstone) down to depths of up to 2 metres below surface.

This formation generally comprises fine-grained, structureless sandstone and sub-ordinate greyish-black shale. The Baviaanskloof Formation attains thicknesses of between 180 and 200 metres and conformably overlies the Skurweberg Formation.

The impact on the geology is site specific but permanent. Gravel and sandstone deposits in the Eastern Cape area are not deemed to be a strategic mineral and the mining thereof can be rated as of low significance.

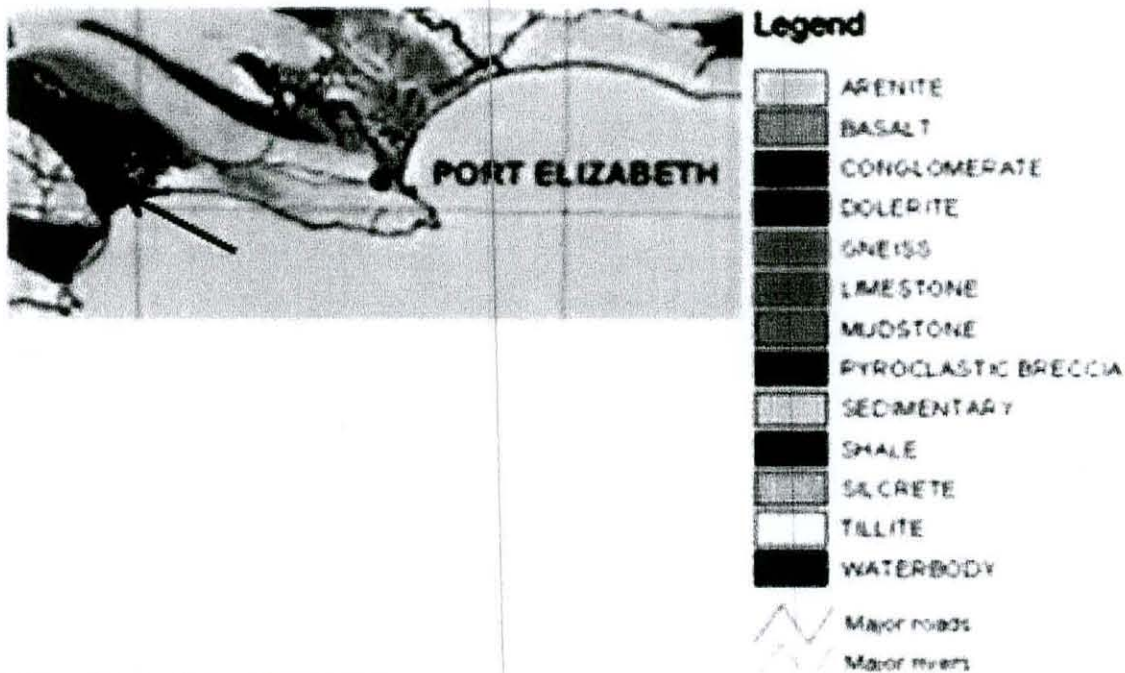
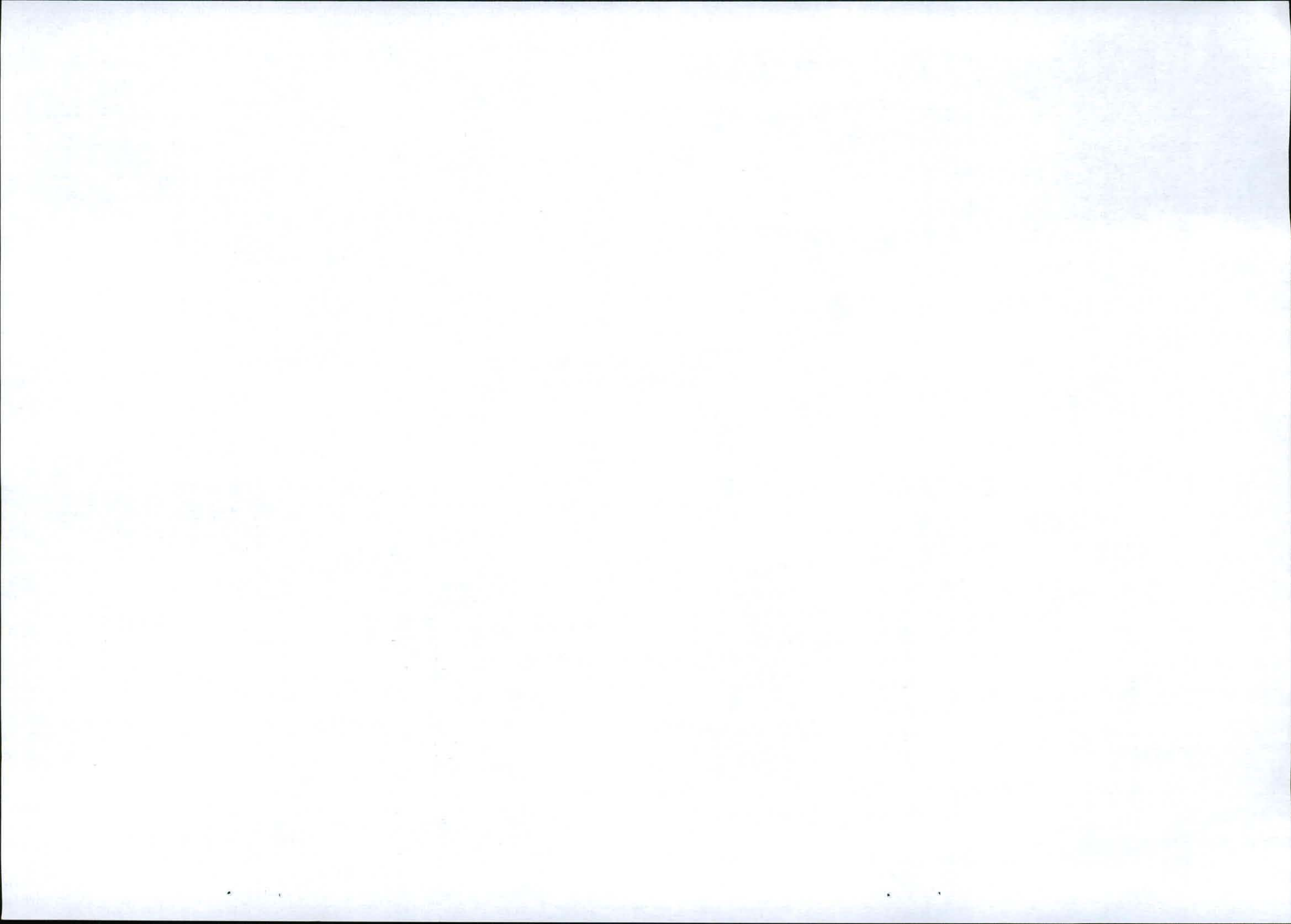


Figure 3: Geology of the area

#### SOILS

#### SOIL PROPERTIES

In general the mining area falls within an area that is characterized with soil with minimal development, usually shallow on hard or weathered rock; with or without intermittent diverse soils. Lime is rare or absent in the landscape. The orthic topsoil layer in the mining area is about 100 mm deep and displays a red gravelly topsoil which is lime deficient and low in organic matter. Acidic lithosol soils derived from Ordovician sandstones of the Table Mountain Group (Cape Supergroup) plinthic catenas prominent.



The soil profile exposed in the mine face at Mentorskraal Quarry shows a weathering profile cut into residual quartzitic sandstone of the Skurweberg Formation. A surface veneer of sandy topsoil with quartzitic sandstone gravel blankets the upper 50 to 100 mm of the site, with residual quartzitic sandstone at shallow depth. The residual material generally comprises an upper highly weathered zone of red-brown, highly weathered soft rock quartzitic sandstone grading into moderately hard rock moderately weathered and hard rock slightly weathered quartzitic sandstone with depth. The zone of highly weathered material ranges from about 0,3 to 2,0 metres below surface, with an average thickness of about 1,5 metres throughout.

Near refusal (retarded excavation rates) conditions will be recorded by excavation equipment once the highly weathered soft rock quartzitic sandstone has been penetrated, exposing the harder moderately to slightly weathered material at depth. The remaining 2-3m meters of material will be fracture blasted.

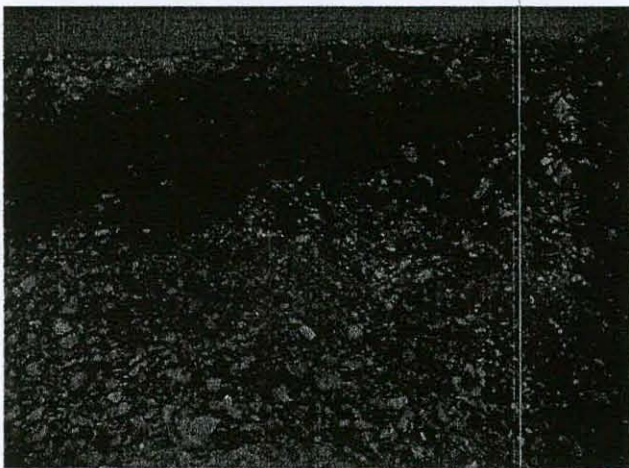


Figure 4: Soil profile of the site



Figure 5: Topsoil at the site

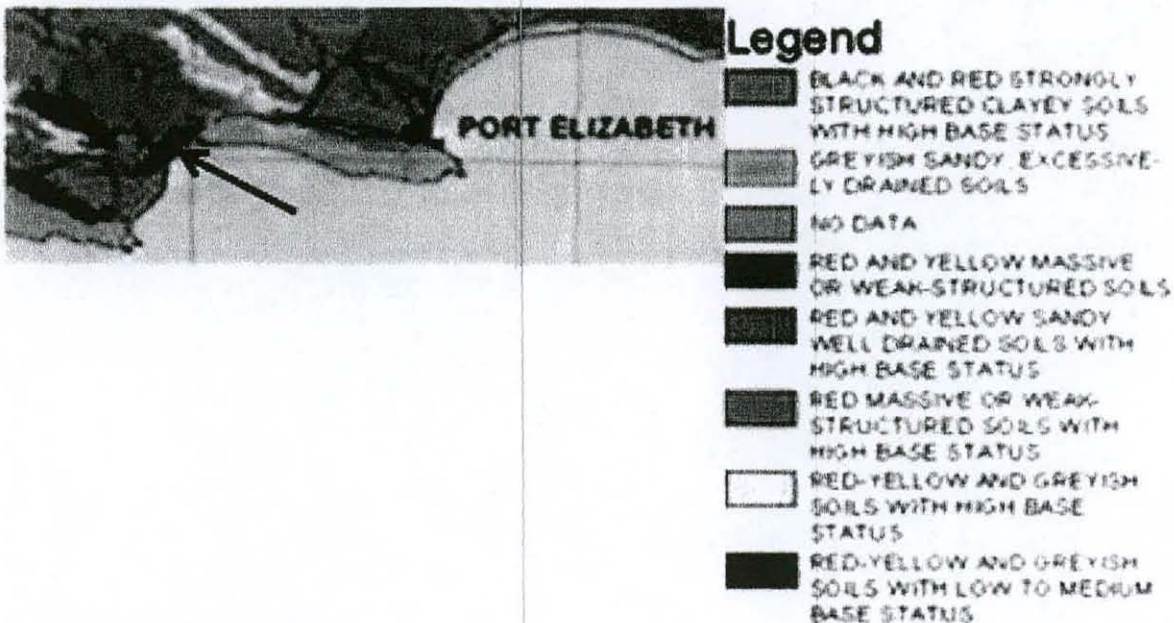
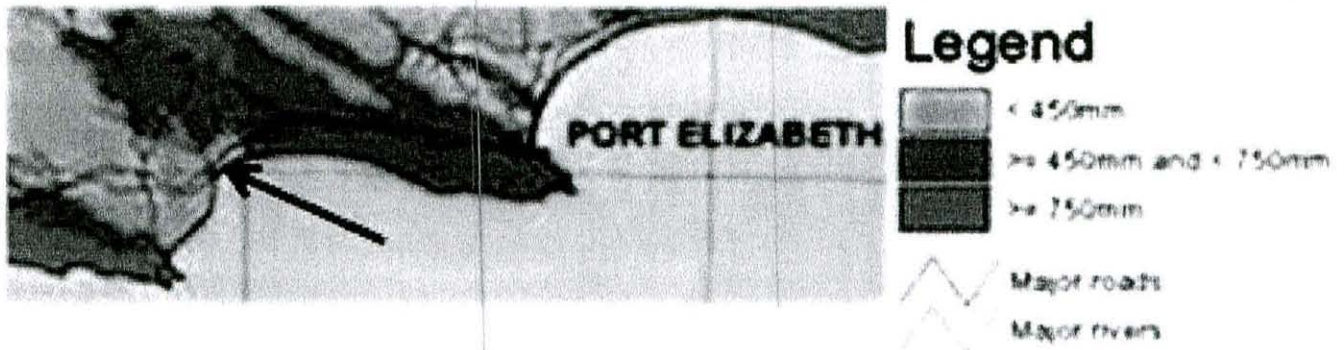


Figure 6: Soil Description







**Figure 7 : Soil Depth**

## SITES AND STRUCTURES OF ARCHAEOLOGICAL AND CULTURAL INTEREST

Archaeological and cultural sites represent the heritage of communities and are therefore protected in terms of current legislation. In addition all structures older than 60 years are protected. The study area revealed no caves, stone features, shelters or any rock art. The fact that the quarry area reveals very thin soil and very compact overburden minimize the potential to find any archaeological deposits such as human skeletal material, shell middens and fragments of marine organisms. The fact that the site is located outside the important 1km zone from the coast also reduces its potential significance.

However the greater area is rich in archaeological sites and since the mining site constitutes a highpoint in the landscape it is anticipated that Stone Age tools and artifacts could possibly be found in the area. None has been observed from a layman's point of view. The site revealed no historical artifacts or features such as graves, foundations of buildings or other features that relates to domestic and military activities.

It is the author's opinion that the geological nature of the area would prevent the area to reveal any natural heritage or cultural sites and the impact of the proposed quarry is rated as insignificant. Since the site hosts a common false fynbos cover it would have very little value to local communities with regards to obtaining vegetation for medicinal purposes. Since the Khoisan and Xhosa people inhabited the study area historically and because the greater area has revealed in the past some archaeological findings of importance the following general rules will apply during the operational phase:

1. The operator of the excavator should be briefed regarding this aspect and a reporting channel must be developed.
2. Management will be informed when anything of interest is observed on the site and it will be reported immediately to Dr. Binneman at the Albany Museum in Grahamstown and SAHRA's office in East London. In such case all operations would be suspended immediately.
3. Any finding will be fenced off immediately.
4. The mitigation measures stipulated in Dr. Binnemans report will be implemented.

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