

ENVIRONMENTAL MANAGEMENT PLAN



PREPARED FOR:
MR ROSS
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PERSONAL PARTICULARS OF THE APPLICANT

APPLICANT AND SURFACE OWNER

Mr. W. R. Ross ID: 310210 501 4089
P O Box 59
Kidd's Beach
5264

MINE MANAGER

Mr. K.R. Ross ID: 591018 509 3080
P O Box 59
Kidd's Beach
5264

TITLE DEED DESCRIPTION

Farm 1090, East London

LAND DESCRIPTION / INFORMATION

REGIONAL SETTING

The proposed quarry is approximately 33 km south west from East London and is on private property. The R72 road lies about 4 km north from the site. Access to the site is via a public road (Kayser's Beach turn off) and private farm road (south-west from the site). The private road connecting to the public road is used by the land owner and residents residing at Cosy Corner, which is a small development area owned by the landowner. However for mining and hauling of material, the site will be accessed via an existing haul road created by the neighbor mining north-east from the site, because the access road used by the residents will not be able to handle heavy vehicle loads from mining. Maintenance of this road will be the responsibility of the land owner and the applicant.



Figure 1: Locality of the site

SURFACE INFRASTRUCTURE

SURROUNDING AREAS

The surrounding area to the mining site has been severely disturbed. Although there are no overheads on (e.g. a power line, telephone line servitude, etc) at the proposed quarry area, the original vegetation area was cleared to establish a grazing unit. The southern area at the site forms a steep downhill, which was also previously disturbed and is currently covered with grass but invaded by *Solanum linnaeanum* (Devil's apple).

To the immediate east of the site is a tomato plantation owned by the applicant. The area directly abutting the site (45m) to the north-west is Mrs. F. Ross's residence house. The abutting area to the north, stretching towards the east of about 10Ha, was mined illegally on Mr. Lustgarten's property. Certain areas were rehabilitated, but mostly large areas are still disturbed. In addition, Mrs. F. Ross

allowed illegal mining to occur completely around her residence, the only outstanding area to be mined around her is the area currently under application.

The rest of the surrounding area is mainly used for agriculture and large sections of areas have been cleared to establish grazing and crop units. Furthermore, an area of about 9.5Ha of prime coastal forest was cleared to establish the residential area known as Cosy Corner Residence.

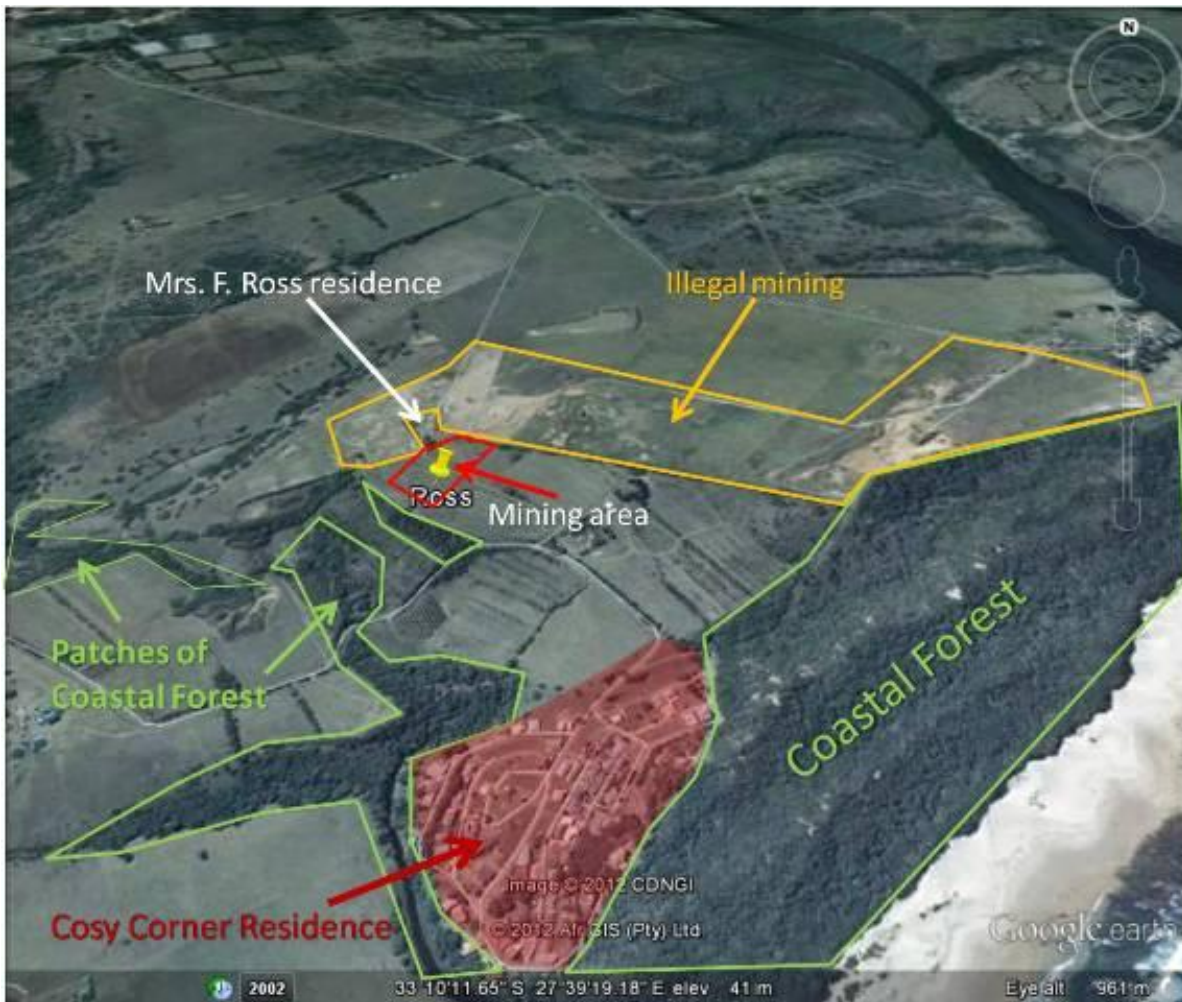


Figure 2: Surrounding area severely disturbed due to human activities.

MINE

Access to the site will be from the Lillyvale Road via a gravel servitude road across Mr Lustgarten’s farm, which links up with public Kayser’s Beach road, unto the national R72 road. This access is currently being used by illegal mining operation to transport material to the various markets. No labor accommodation or campsite will be established on site.

The area identified for the mining application is a grazing area, which is situated very close to a neighbor's farm house, Mrs F. Ross. Currently secondary grass cover has established on the area with most of the invaders being established on the slope area.

No offices will be built and a chemical toilet will be brought to site, which will be used by workers at the mine area to prevent the surrounds being used for ablutions. A single stage screen might be placed within the quarry pit and the material will be carted directly to the markets.

PRESENCE OF SERVITUDES

There are no servitudes registered in the proposed quarry area.

EXISTING LAND USES THAT IMPACT ON THE ENVIRONMENT IN/OUTSIDE THE PROPOSED MINING AREA

- Transformation of land through bush clearing to establish grazing units, causing medium-high loss of terrestrial ecological integrity.
- Spread of invasive vegetation.
- Transformation of land through sand mining, causing medium-low loss of terrestrial ecological integrity.
- Development of small residential units on the farm, causing medium-high loss of terrestrial ecological integrity.

Most of the areas immediately surrounding the mine site are transformed due to activities listed above. There is a small strip of land to the south-west of the site that is sandwiched in between the mine area and the access road that leads to the residential area, where some of the original vegetation is still intact.

Through the proposed mining process, the applicant will ensure that the affected land is rehabilitated properly and restored to a properly grazing functional unit. The mine area will be limited to 1,5 Ha.

NAME OF THE RIVER CATCHMENT IN WHICH THE QUARRY IS SITUATED.

The development site falls within the Keiskamma River catchment.

Figure 3: Keiskamma River Catchment area

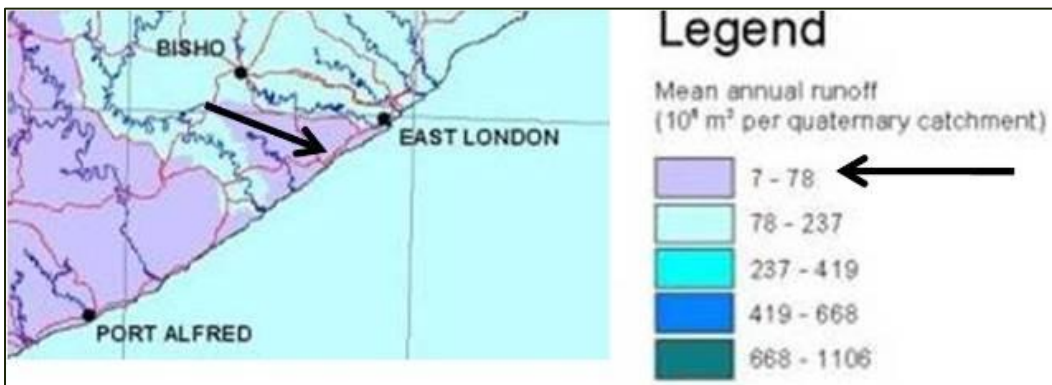


Figure 4: Catchment runoff

The Keiskamma River catchment area receives between 7-78 x10⁵ m² mean annual runoff.

ZONING

Current zoning is agriculture and since mining is seen to be a temporary change of land use, no application for change of land use in terms of LUPO is required. In this regard, the repealed Minerals Act 50 of 1991 and the current MPRDA 28 of 2002 has replaced the provisions of the Physical Planning Act.

PROJECT DESCRIPTION

The proposed quarry will be a private concern licensed by the Department of Mineral Resources. Material would be extracted by means of excavator to a depth of approximately 1-2m. Mining will commence as per mine development plan and will be executed in 3 phases. Material will be screened and carted directly to markets.

MINERAL DEPOSIT & MINE PRODUCT

Sand

ESTIMATE RESERVES

The potential of 25 000 cubic meters of sand would be extracted with an average production rate of approximately 1 300 cubic meters (loose) per month, over a period of approximately 22 months.

PROSPECTING/ALTERNATIVE

The entire mining permit area reveals marginal surface cover and the underlying sand deposit are clearly exposed. Sand reserves are clearly visible on the surface of the area applied for and there was no need to engage in further prospecting activities. In addition, to the east of the site a sand permit was granted, which is indicative of the mining potential of the area and the adequacy/quality of sand reserves in this particular area.

MINING METHODOLOGY

Access to the site will be from the Lillyvale Road via a gravel servitude road across Mr Lustgarten's farm, which links up with public Kayser's Beach road, unto the national R72 road to export material to the different markets. This haul road, is not on the property of the applicant (who is also the landowner), but it is on the neighbor's property who is currently mining sand and currently using this haul road to transport material to the different markets. The Cosy Corner access road also provides access to the site from the south; however this road is used by the residents of Cosy Corner who pays for the upgrade of this road. However, this particular road, although it is tarred, is in a very bad condition. It will not be able handle the heavy vehicle movements and it is evident that should loaded heavy vehicles use this road it will be break up within a matter of a few weeks. Since the neighbor has already established a haul road an agreement could be reached by the two parties; the environmental and social impact would be lessened if only one haul road could be used. Therefore, permission from the neighbor must be gained to use this road before approval is granted.

In terms of the workforce; they will not reside on the mine, but will commute to work every day. Due to the anticipated fairly small workforce involved, no waste disposal site is required. A container with a lid would be placed near easy accessible areas on the mining area for the storage of household waste. No sewage plant would be required; a chemical toilet will be provided at the entrance to the mine area. Due to the very close proximity of the residential house of the neighbor to the north of the proposed mining property, it is extremely important that all waste be handled with strict control not to cause any inconvenience to the neighbor. The impact on waste is further discussed in this document.

Water for dust suppression and re-vegetation process will be supplied by means of a water tanker to be filled from the boreholes on the farm. Drinker water would be kept in a clean PVC container and topped up on daily basis.

No maintenance yard will be established since all vehicles will be maintained at the maintenance workshop in East London. In addition, a workshop at the farm could facilitate minor services and general repairs. The proposed operation would be continuous and working hours will be from 7.30 am to 5 pm five days a week with cessation of activities at 1 pm on Saturdays if market demand requires mining over the weekend.

The mine area comprises about 1.5 ha and will be mined to an average depth of 1-2m and approximately 25 000 cubic meters of sand will be extracted over a period of 22 months at an average production rate of approximately 1300 cubic meters per month.

The quarry will be developed using conventional open cast slot mining method. An excavator will be used for this purpose. Mining will be done in eight (8) phases as depicted on the mine plan.

The mine area will be divided into two areas initially. The flat, top area, consisting of phases 1, 2 & 4, and the bottom, inclined area, consisting of phases 3, 5, 6 & 7. Phase 8 will remain as a 3m wide pillar separating the two sections. The purpose of the pillar is to control storm water runoff and mitigate erosion on the incline area, once mining is in progress.

The haul road will link up to the northern section of the mine and mining will commence in phase 1 in a south-west direction in a slot of 30m x 50m – this will be applicable to phases 1, 2 & 4. A portion of the existing quarry floor directly behind the production face will be used for establishing a small stockpile. Once phase 1 is mined out, mining will progress to phase 2, in similar slot of 30m x 50m.

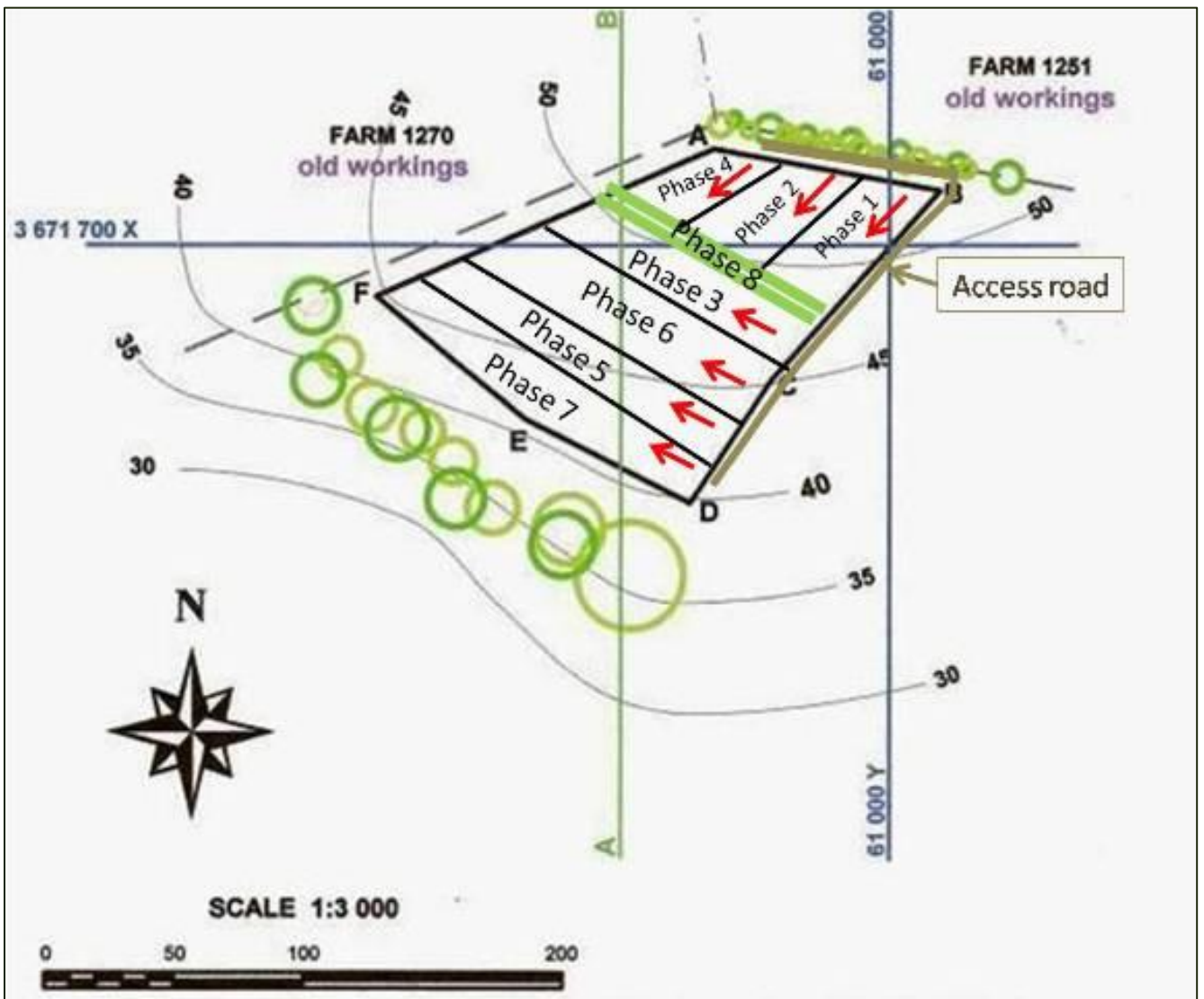


Figure 5: Mine development plan

Before mining of phase 2 starts, 3m high hessian cloths must be erected on the North-western boundary line of the neighbor, to mitigate the impact of dust on his property. It is imperative that concurrent rehabilitation takes place.

To mitigate the impact of dust on the neighboring resident and provide ample time for rehabilitation on phases 1 & 2; mining will continue on phase 3, in a 150m x 25m wide slot, directly under phase 8, in a north-westerly direction – this will also be applicable for phases 5-7. Phase 2 must be rehabilitated while mining phase 3. This will ensure that when mining progress to phase 4, phases 1 & 2 would be rehabilitated and impact on the resident should be less.

Mining the bottom, inclined area; the phases must be mined in the alternative slots, as provided in the phase development layout plan. It is important to alternate, because of the steep incline of the area, sheet wash and erosion will be a huge impact. Therefore, while mining phase 4, phase 3 will be

rehabilitated (fertilized, seeded and irrigated). While mining phase 5, phase 4 will be rehabilitated, and phase 3 would have established a sufficient grass cover and together with phase 8 (3 m pillar) and phase 6 (which is at this stage still undisturbed), will absorb sheet wash after a rainfall and act as an energy breaker to mitigate erosion on the exposed phase 5. Concurrent rehabilitation must be of the at most importance and phase 5 must be rehabilitated while mining phase 6, and so on.

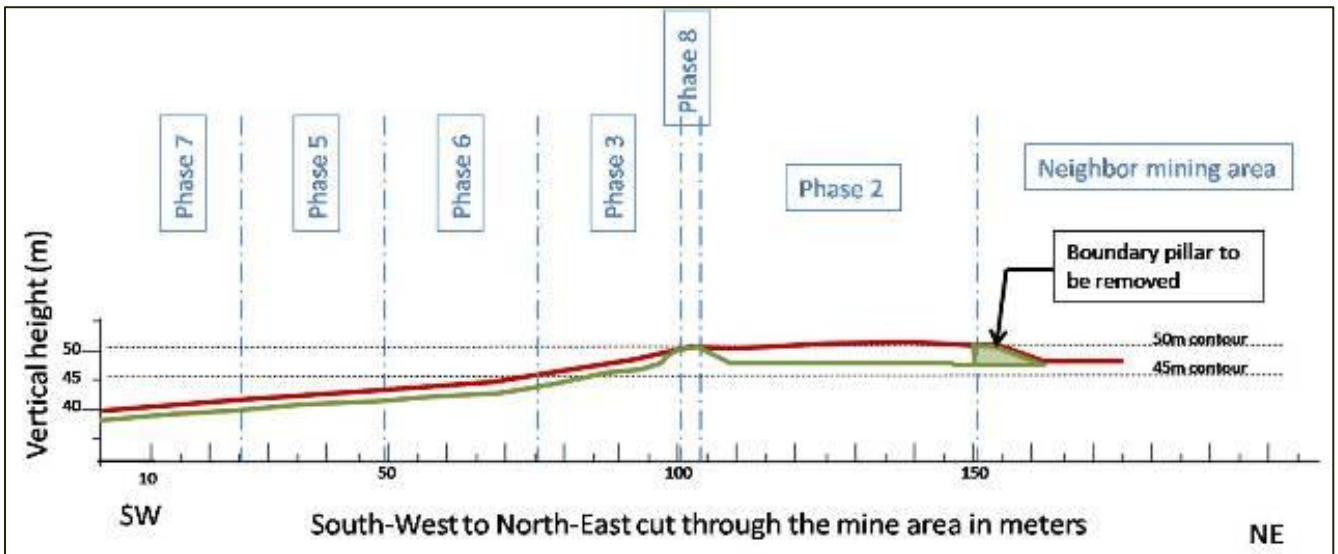


Figure 6: Cross section of the profile of the area before and after mining. Note: The red line represents the current profile; the green line represents the profile after mining.

Phase 8 will not be mined, but be retained as a pillar/contour, to control storm water on the disturbed inline area. The sides of phase 8 must be sloped to 1:3 gradient. The boundaries between phases 3&6 and 5&7 must be used to create contours to direct storm water to the east of the site. This will be discussed in full detail under the headings “Soil” and “Water”.

It is expected that sand will be more readily available on the top, flat area and mining should lower the floor to about 2m. The sand resource should decline on the bottom, inclined area and mining would lower the profile with not more then 1-1.5m. Mining will follow the natural incline of the site.

The west and east boundary sides of the site must be sloped to a 1:3 gradient. In order for the topography of the general area to blend it, it is suggested that the boundary pillar between this mining site and the neighbors mining site (north-east), be removed.

The site has limited topsoil, however the topsoil stockpiles will be cleared ahead of each phase/slot and will be used to rehabilitate the mined out phase while proceeding unto the next phase.

Once the material is extracted, the quarry area will resemble a small depression in the landscape, following the natural incline of the area. The site will be useable for agriculture. Upgrading of the soil will be very important and a seeding program would follow suit.

MINERAL PROCESSING

Extracted material will be screened and loaded onto tipper trucks and hauled to market areas. The sand resource is generally clean due to extensive leaching of the E-horizon under above average precipitation rates. If sand is contaminated with root matter, it will be screened by means of a single stage screen, positioned within the pit, which will be moved along as mining progress. Vegetative matter that is removed would be used during the rehabilitation phase.

PLANNED PRODUCTION RATE AND PLANNED LIFE OF MINE

A conservative initial production rate of approximately between 1 000 – 2 000 cubic meters (loose) per month is anticipated over a period of approximately 22 months.

CONSTRUCTION PHASE

The only construction activities involved will be the removal of the limited topsoil and vegetation, which will be stored on the perimeter of each phase; the clearing and leveling of vegetation to make way for the temporary access roads. These access roads will run north-east and east of the site. It might be necessary to protect the eastern access road against erosion by means of cross and mitre drains; spill out of these cross drains must be directed into areas that are well established with vegetation, which will not lead to any erosion. The roads will be lengthened as mining progresses towards the next phases. The north-east access road will be absorbed in the removal of the boundary pillar of this mining site and the neighbors mining site and the east access road will be ripped and rehabilitated once phase 7 is completed. If erosion occurs due to the temporary access road, erosion gullies must be filled in immediately and vegetated; and the access road must be shaped to tilt slightly eastwards, away from the quarry to allow water to be diverted into areas that are well established with vegetation.

No office infrastructure will be established in the mining area. No hydrocarbon storage facilities will be constructed on the property. Waste disposal will be through depositing waste in strategically

positioned containers fitted with scavenger proof lids and will be removed by the contractor at a regular basis. No Eskom and Telkom service points are required.

TECHNICAL COMPETENCY

APPLICANT

Mr. W. R. Ross has been a farmer all his adult life and is the fourth generation of his family on amongst other the farm concerned. He carries out mixed farming, which includes stock farming and various crop productions. Farming activities, and more specifically stock farming, required extensive clearing of bush in the past, flattening of dune crests through cut-and-fill methods. He is also fully capable in handling large tractors and scoops. He therefore disposes of adequate knowledge and skills to develop the quarry and perform the required supervision over the limited workforce. Furthermore, these areas were transformed to pastures and he is therefore also fully capable of implementing water erosion and dust control measures, seeding and fertilizing techniques. He cultivates also fruit and vegetables and is proficient in upgrading of soils required for this purpose.

He was also instrumental in developing roads and small dams on his properties and dispose of adequate knowledge of road construction and small excavations. He manages his laborers in an effective manner and dispose of the required human resource skills to control operators onsite. Thus he will be able to ensure that proper mining is conducted and will be able to impose the necessary safety requirements. He manages his own finances through a dedicated in-house book-keeping program and assistance from his bookkeeper. He is therefore fully capable to manage the books of the proposed sand mining operation and thereby ensures a financially sustainable mining concern. Considering the above Mr. Ross is well capable of mining sand on his farm and rehabilitating the excavation. In these endeavors he would be assisted by Mr. K.R Ross, who will act as mine manager.

Mr. K. R. Ross has also been a farmer all his adult life and disposes amongst other of the same competencies as his father, Mr. W. R. Ross. He has built a number of large dams in his career as farmer and is well equipped to handle heavy duty equipment. He was also instrumental in the establishment of a coastal resort on one of their farms and is therefore well equipped to construct roads, building of residences, excavating foundations, laying of sewage and water lines and to a lesser degree provision of electricity to residences. He is also in charge of maintenance of equipment/machinery on their farms and would therefore be able to provide advice on safety standards of vehicles and assist the contractor in this regard.

He, in his farming, is responsible for supervision over laborers and farm planning, both competencies that will be required for the mining operation. He is also in charge of loading and dispatch of stock, fruit and vegetables and is thus well equipped to handle the carting of heavy loads. Considering the above Mr. K. R. Ross is well capable of mining the proposed sand quarry and rehabilitating the excavation.

Developing a sand quarry in an appropriate manner does not require extensive mining skills and considering the abovementioned earthmoving experience of both Mr. Ross and his son, the applicant would be able to develop the quarry in a manner that should be acceptable from a mine health & safety, as well as from an environmental perspective.

EQUIPMENT

The applicant will contract Mr G. Kretzmann, which will provide a TLB and a 6m³ Tip Truck for the mining operations. Since this is a very small mining concern, there is no need for more earth moving equipment.

All the drivers and machine operators, that will operate the vehicles, have been employed by Mr. Kretzmann for more than five years and are therefore well trained. The company is also audited and cleared on a regular basis ensuring that all the standards are met in terms of the Health & Safety regulations. Being an earthmoving contractor, Mr Kretzmann disposes of appropriate skills and technical support to the applicant.

PERSONNEL

As already indicated, all the equipment listed dispose of a designated and fully trained operator. An additional farm worker will be handling the rehabilitation on site, who is employed by the applicant for many years. Therefore he is also trained and familiar with the working procedures and is aware of the requirements of the Occupational Health & Safety Act. This mining operation will employ at most 3 workers.

ECONOMIC SUSTAINABILITY AND FINANCIAL COMPETENCY

Mr. Ross is a respected farmer and business man in the Cosy Corner area and has acquired adequate wealth in his career to firstly developed and manage his farm successfully; secondly to develop the Cosy Corner Residence and now, the new venture of this proposed mining. Although this is a very small mine, Mr. Ross took note of the importance in establishing a legal mining concern in the area,

as there is a clear market for sand, but currently no legal source to obtain sand. Therefore residence and other interested markets have been purchasing sand from illegal sources in the surrounding area.

Thus Mr. Ross have made R150 000 available for developing the mine, therefore the development does not pose a significant risk to the DMR. It is anticipated that on average approximately 1300 cubic meters of material would be extracted per month and sold at approximately R55-R80 per cubic meter onsite, depending on the market.

The proposed concern has some environmental and Health and Safety considerations but finances available should be adequate to cover any such costs. A financial guarantee to the value of R45 000 will be made available to the DMR before approval. The Department of Mineral Resources however will have to make a final decision in this regard considering the financial submissions made to the DMR.

ENVIRONMENTAL COMPETENCY

It is important that the applicant disposes of adequate environmental knowledge to ensure that an environmentally friendly concern is established that complies with current legislation and poses limited post closure impacts. Mr. Ross, in his farming, is protective of the natural environment and all significant floral and associated faunal habitats related to the coastal bush and drainage lines have been conserved.

The proposed concern will require good housekeeping, which will be within reach of the applicant's abilities, since he is familiar with the stabilizing of soils and re-vegetation: the establishment of pastures is basic routine for him. The applicant is conversant with the rehabilitation and profiling of crop lands to an acceptable aesthetic and safety standard. The applicant will therefore be capable of re-vegetating the post quarry area to a functional pasture without causing degradation of land through water and wind erosion. This will also be in the interest of the applicant to restore this portion of land as he would like to continue to use the land post mining for grazing purposes.

In order to address environmental matters and demarcate the mine area, the applicant appointed SES as environmental consultant and JVS as surveyor and through the EMP and continued assistance to the applicant the site should be developed in a sustainable manner

Environmental impacts associated with the proposed project are restricted, but not limited to dust, erosion on slopes, loss of the secondary vegetation cover until the site is rehabilitated, and social impacts.

Through the conditions of this EMP, the applicant will ensure that the social and environmental considerations applicable to the quarry are executed. The applicant will also submit an annual performance assessment reports reflecting on his ability to manage the environment.

REGIONAL CLIMATE

Climatic conditions such as temperature, rainfall and wind velocity influence for example plant growth, erosion levels of disturbed areas, dust generation and air pollution levels as well as social impact in terms of quality of life. Climatic conditions can therefore influence the significance of impacts caused by developments such as mines. It is therefore important to understand the role thereof when determining the impacts of a specific development and the remedial measures that need to be implemented.

Climatic data was obtained from Schultz and Kopke as well as from the institute of Soil Climate and Water. The study site falls into the Southern Temperate Climatic Zone and can therefore be considered mild with strong winds and occasional periods of high humidity during the high summer months.

RAINFALL

The Eastern Cape Province experiences a bimodal rainfall pattern with pronounced wet seasons coinciding with spring and autumn. These rain periods are frequently associated with northeasterly winds. Spring rains may also be associated with the passage of cold fronts drifting in from the west. Thunderstorm activity is common along the coast in late summer and autumn and result in intense cycles of rain and wind. This is illustrated by the fact that the maximum rainfall recorded in a 24h period for any month is almost double the monthly average. Dry periods are coinciding with midsummer and mid winter. The average annual rainfall for the Province is approximately 873mm.

The area falls within rainfall area that receives between 725 and 875mm per annum, which will stimulate plant growth and reduce dust generation to some extent. However, it will increase erosion on disturbed and uncovered mine areas and the necessary storm water control measures need to be implemented. Seeding must therefore coincide with early spring and early autumn to ensure a successful re-vegetation phase. Hail, frost or snow is not common phenomena in this area and will not affect the re-vegetation process.

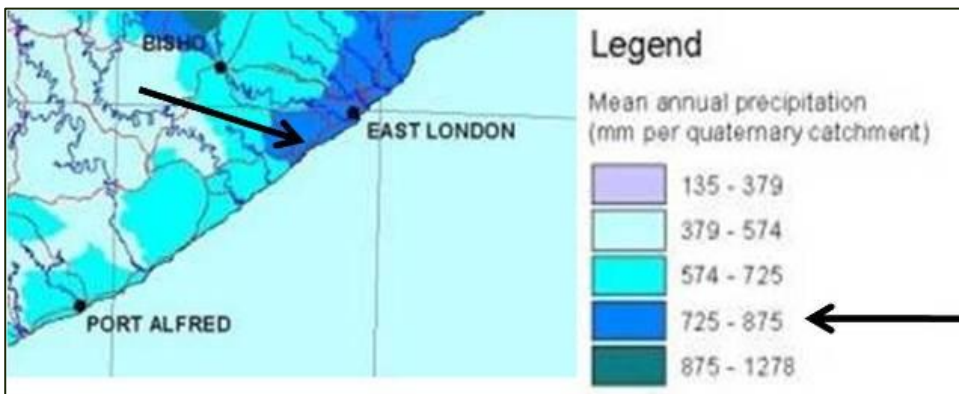


Figure 7: Mean annual precipitation

TEMPERATURE

The area experiences warm to hot summers with maximum temperatures in February and minimum temperatures July. Hot north-westerly berg winds may occur in winter and may last for a few days, usually preceding cold fronts. From the statistics it is essential that seeding be restricted to the warmer periods to achieved optimum germination and growth. The annual evaporation of the area totals approximately 1400mm with the highest evaporation rates associated with the summer months.

East London

| Month | Average | Ave. Max. | Ave. Min. | 'S' pan evap. |
|-------------|-------------|-------------|-------------|---------------|
| January | 22.0 | 25.5 | 18.2 | 168 |
| February | 21.1 | 25.7 | 18.4 | 144 |
| March | 21,3 | 25 | 17.6 | 122 |
| April | 19,5 | 23.6 | 15.1 | 96 |
| May | 17,7 | 22.7 | 12.8 | 81 |
| June | 15,9 | 21 | 10.4 | 73 |
| July | 15,6 | 21 | 10.1 | 76 |
| August | 15,9 | 21.1 | 11 | 91 |
| September | 16,7 | 21.2 | 12.3 | 102 |
| October | 17,7 | 21.5 | 13.9 | 127 |
| November | 19,1 | 22.8 | 15.5 | 146 |
| December | 20,7 | 24.3 | 16.8 | 174 |
| YEAR | 18,7 | 22,9 | 14,4 | 1400 |

WIND REGIMES

The prevailing wind directions are predominantly west and east-north-east but with significant easterly, north-easterly, south-westerly and northerly components. Winds are mostly aligned with the coast during the summer months. The north-easterly winds decrease from April when the south-westerly winds become more pronounced. Wintertime is dominated by south-westerly winds and north-westerly winds. Strong winds above 5m/s occur in more than 30% of the year with calms approximately 10% of the year. The calms are mostly restricted to the summer months and then well to nighttime. The average wind speeds are moderate with 50% of the winds reaching speeds between 1.5-5.5m/s. The calms can for example result in the concentration of dust near ground level at night. Wind erosion is also an environmental parameter that needs to be controlled when sandy soils are predominant, whilst it would have a lesser effect when well-developed soils such as weathered dolerite soils are predominant.

PRE-MINING ENVIRONMENT, ENVIRONMENTAL IMPACT ASSESSMENT & MANAGEMENT PLAN

ENVIRONMENTAL IMPACT ASSESSMENT

The impacts of the mining operation on the environmental parameters are assessed in this section in accordance with the criteria of the Minerals and Petroleum Resource Development Act 28 of 2002 and section 21, 22 and 26 of the Environmental Conservation Act. The process will highlight the impacts and emphasize the importance of remedial measures over the short term as well as post extraction. Impacts were assessed according to the criteria listed below:

Extent Whether the impact will occur on a scale limited to the immediate site of the proposed activity, local area and immediate communities and settlements, sub-regional (municipal), regional (provincial) or national scale

Spatial extent: None/Insignificant **(0)**, Site **(1)**, Local **(2)**, Sub-Regional **(3)**, Regional **(4)**

Duration Whether the time span of the impact will be short term (0-5 years), medium term (5-15 years), long term (in excess of 15 years) or permanent where natural processes or mitigation processes cannot eliminate the impacts.

Duration: None **(0)**, Short Term **(1)**, Medium Term **(2)**, Long Term **(3)**, Permanent **(4)**

Intensity (Magnitude) Whether the size of the impact is low, medium, high or negligible.

Intensity: None (0), Very Low (1), Low (2), Low-Medium (3), Medium (4), Medium-High (5) High (6), Very High (7)

Probability The probability of the impact actual occurring as either unlikely, probable, likely or definite

Probability: None (0), Unlikely (1), Probable (2), Likely (3), Definite (4)

These criteria are evaluated in terms of

- Significance (Insignificant-low-moderate-high)
- Status (positive-negative-neutral)
- Confidence (based on academic information, specialist knowledge, site evaluations, applicants approach)

The significance of the impact on the parameters of the affected environment is rated as:

Low Significance The project will not cause any major adverse or beneficial changes to the biophysical, social or economic environment. Impacts experienced will abate almost immediately after cessation of activities and the biophysical, social or economic system should recover and return more or less to the natural state. No expensive mitigating measures will be needed to address any of these impacts. Ecological functions will continue undisturbed and no complaints from Interested and Affected Parties (I&APs) are anticipated. No rare and endangered species or sensitive areas exist in the area.

Moderate Significance The project will induce moderate short to medium term changes to the biophysical, social or economic environment. The impact would be induced outside the development area and also possibly on a sub-regional level. Over the medium term the impacts could fade away but the implementation of mitigation measures are normally required to eliminate these impacts. The impacts would be experienced for some time after cessation of activities but would not affect the biophysical, social or economic environment severely. With mitigation the biophysical, social or economic system should recover but the return to the natural state would be very slow and in some instances may not be achieved. I&APs might express some concerns and complaints may be received on an *ad hoc* basis. Rare and endangered species or sensitive areas may exist in the area and could be marginally affected.

High Significance

The project will induce extensive long-term changes to the biophysical, social or economic environment. The impact would be induced outside the development area and also possibly on a regional to national level. The possibility of secondary impacts arising from the project is high. Over the long term the impacts could fade away but the implementation of expensive mitigation measures are normally required to eliminate or mitigate these impacts. These impacts would be experienced after cessation of activities and could affect the biophysical, social or economic environment severely. With mitigation the biophysical, social or economic system could possibly recover but the return to the natural state would be or normally not be achieved. Ecological functions will be permanent disturbed and major complaints from Interested and Affected Parties (I&APs) could be expected. Rare and endangered species or sensitive areas exist in the area might be critically affected.

Significance: 0-6 = Insignificant; 7-15 = Very Low; 15-22 = Low; 23-31 = Low-Moderate; 32-40 = Moderate; 41-47 = Moderate-High; 48-55 = High; above 55 = Very High

The significance weight figures are calculated by adding the spatial extent, the duration and intensity and multiplying that by the probability figure.

Should the impact assessment as a minimum reflect 2-3 impacts of high significance and 2-3 impacts of moderate significance the project shall be viewed as a potentially flawed and continuation of the project should be seriously reconsidered or special engineering or biophysical/social intervention must be implemented.

TOPOGRAPHY

The topography of the study area falls within an area that can be described as strongly undulating irregular land.



Figure 8: General Topography of the area

The study area can be divided into two areas, the flat, top area and bottom, inclined area, slanting towards the south-west with a 1:10 gradient. To the immediate east and west of the site, the slope remains the same at a 1:10 slope towards the south-west. To the north-east of the site, mining has lowered the area with about 2m and is fairly flat.

Mining the site will lower the floor between 2-1m, depending on the available material, but will follow the natural incline of the site. The north-east boundary should be removed to link the two mining sites in order to blend the profile of the site in with the surrounding topography. Mining will therefore cause a small depression in the landscape, following the natural incline of the area and will be free draining.



Figure 9: Immediate area north-east from the site that has been mined out.

In order to control storm water, contours will be created on the inclined area of the site. The eastern and western sides of the quarry will also be sloped to a 1:3 gradient, creating gentle slopes to blend in with the surrounds.

Removing material will alter this section of the topography permanently, but considering the small section to be removed and the fact that the area will be sloped in such a way to follow the natural incline of the area on the steeper area, the impact is rated low-moderate. Phases 1, 2 & 4 will have an average slope of 1% slope towards the north-east, excluding the boundary sides, which will be a 1:3 gradient. For phases 3, 5, 6 & 7, the average incline would remain a 1:10 gradient, but contours will be created to direct storm water runoff away from the disturbed areas.

Currently the site is covered with grass vegetation and weeds, therefore although not pristine vegetation, the clearing of vegetation would be noticeable, but with profiling and rehabilitation after mining; it would be lessened. With the necessary mitigation and the correct mining approach, the visual disturbance expected, could be effectively mitigated.

The placement of permanent infrastructure within the mining area would not be permissible and from this perspective, no impact on the topography will take place and no additional visible changes to the landform are expected.

The site is located away from major public roads and tourist routes. However vegetation clearing will be visible for the residential area on the land owner's farm as well as the neighbor residing north-west of the site. Trees to the south-west of the site will partially screen the site, but only to the by passers. Visual impacts are addressed under the heading of 'Visual impacts' and further discussion on this topic can be viewed there.

The change in the topography of the mining area will be irreversibly altered since a portion of the land will be permanently removed, but with infill planting it could display a rougher texture, which would fit in with the surrounding environment.

Considering the nature of the mining process envisaged, no unacceptable changes to the area are expected, should the necessary precautionary measures contained in this document be implemented. The impact on topography is considered of moderate significance without mitigation, but considering the small area to be affected, mitigation measures taken; reduces the intensity of the impact to low-moderate. Should the necessary precautionary measures contained in this document be implemented the impact at closure would be reduced.

Impact on topography.

| | OPERATIONAL (no mitigation) | WEIGHT | OPERATIONAL (with mitigation) | WEIGHT | CLOSURE | WEIGHT |
|---------------------|--------------------------------|-----------|----------------------------------|-----------|---------------|-----------|
| Extent | Site Specific | 1 | Site Specific | 1 | Site Specific | 1 |
| Duration | Permanent | 4 | Permanent | 4 | Permanent | 4 |
| Intensity | Low-Medium | 3 | Low | 2 | Very Low | 1 |
| Probability | Definite | 4 | Definite | 4 | Definite | 4 |
| Status | Negative | | Negative | | Negative | |
| Confidence | High | | High | | High | |
| Significance | Moderate | 32 | Low-moderate | 28 | Low | 20 |

REMEDIAL MEASURES

- The impact on the topography of worked out areas will be remedied by means of profiling and stabilizing production faces.
- Mining shall not progress beyond the approved mine area, except for the removal of the north-eastern mine boundary, which must be removed to link this mining site with the neighbors mining site, in order to blend the general topography of the area into each other and lessen the impact.
- Quarry must be developed as described under the heading 'Mine methodology', with clearing of vegetation phase by phase.
- The eastern and western production faces must be profiled to a minimum slope of 1:3 and in such a way that sharp angles are prevented but that flowing curves are formed instead that blend with the surrounding landscape.
- The floor of the top, flat area (Phases 1, 2 & 4) must be sloped to a 1% gradient towards the north-east.
- Phase 8, a 3m wide pillar, must remain and not be mined. This will act as the first contour on the bottom, incline area to mitigate storm water runoff. The sides of the pillar must be sloped to a 1:3 gradient, fertilized and seeded.
- The floor of the bottom, inclined area must follow the natural incline of the site. Contours must be created between phases 3&6 and 5&7, diverting storm water to the east of the site, into areas that are well established with vegetation. Contours must be developed as described under the heading "Water".
- Any root mass that the quarry generates must be used during the rehabilitation of the site.
- Each phase shall be fully profiled within 30 days after mining in a particular phase ceased and will be fully vegetated within 9 months.
- No areas outside the authorized mine area will be disturbed.
- A photographic record must be kept and complemented six monthly and must accompany the six-monthly performance assessment report.

- No stockpiles shall remain at closure.
- Stockpiles will be kept as small as possible and must be inside the mine area on the existing quarry floor directly behind the production face.
- The post rehabilitation topography will result in a depression on the hill, following the natural incline of the area with three contours.
- All mobile infrastructures shall be removed at closure.

GEOLOGY

The area reflects two rock types, namely the mudstones/sandstones of the Beaufort Group and dolerite intrusions. The Beaufort Group in this area comprises of the Adelaide Subgroup and the Katberg Formation. The Adelaide Sub-Group is represented by Balfour Formation (Pb) (alternating units of grey, moderately to well sorted, fine to very fine-grained ultra-lithofeldspathic sandstone and greenish-grey to grayish-red massive mudstone). Sandstone generally forms 20-30% of the total thickness. The thickness of the Adelaide Subgroup in this area is about 2000m. The sandstone and mudstone litho-units normally form fining-upward cycles, each comprising of sandstone with a sharp, erosive base, which grades upward into the overlying mudstone. These cycles vary from a few meters to a few tens of meters in thickness. The thickness of individual sandstone units ranges from a few meters to 60m. They are sub-tabular to moderately lenticular with extensive lateral extent. Flat bedding, trough cross-bedding and micro-cross-lamination is the most abundant primary structures in the sandstone. The Adelaide Sub-Group appears to have been transported by north-west flowing meandering rivers. The sandstone component through historic scouring will have some influence on the inland sand deposition.

The Katberg Formation (TRk) consists of light brownish-grey, moderately sorted, fine- to medium-grained, lightly pebbly, lithic to lithofeldspathic sandstone with a thickness of approximately 900m. These sandstones are characterized by flat bedding and through and planar cross-bedding. Some beds are superficially massive, but even these are probably not actually structureless whilst deformed cross-bedding is occasionally present. The sandstones are generally coarse-grained and are indicative of deposition in a braided stream environment. Scouring of the inland sandstone has resulted in the deposition of the target mineral along the coastline and through regression of sea levels and onshore wind action sand was deposited parallel to the coast forming the current primary dune system.

Some times at lower levels immature calcrete layers with planer aeolian cross bedding wind ripples, up to 30m in extent with thickness up to 1m occurs or alternatively calcrete nodules may contaminate the sand. Should it occur onsite sand will be screened and calcrete being returned to the excavation.

The sedimentary rocks of the area were intruded by dykes, sills and inclined sheets of dolerite during the Jurassic. Dykes are normally not more than 10m wide and extend for a few kilometers. The dolerite is normally tholeiitic in composition. Dolerites are poorly represented in surface outcrop in the East London area.

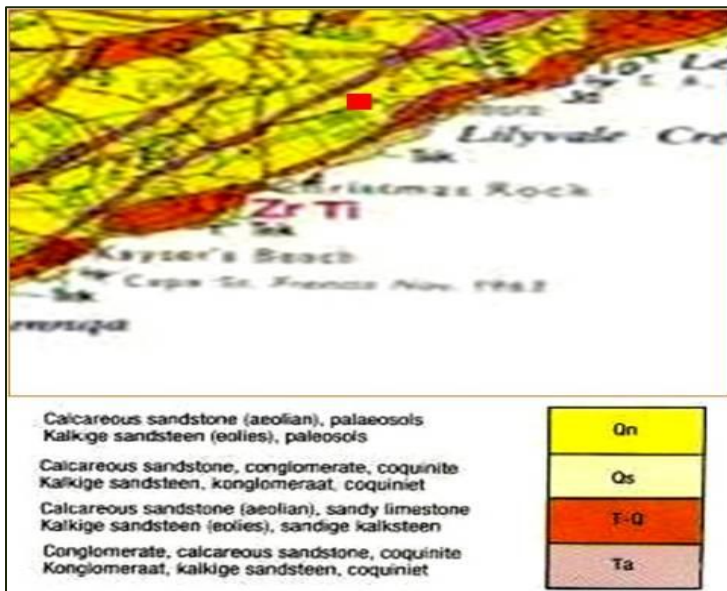


Figure 10: General geology of the larger area

Mining will result in permanently removing the Aeolian sand layer of between 1-2m on this portion of land. Considering the nature of the development the impact is unavoidable, but considering that only 1.5ha will be removed; does lessen the impact. Also, the material does not constitute a strategic mineral and the site a geo-site therefore the impact is rated as low-moderate with mitigation.

Impact on geology

| | OPERATIONAL (no mitigation) | WEIGHT | OPERATIONAL (with mitigation) | WEIGHT | CLOSURE | WEIGHT |
|--------------------|-----------------------------------|--------|-------------------------------------|--------|---------------|--------|
| Extent | Site Specific | 1 | Site Specific | 1 | Site Specific | 1 |
| Duration | Permanent | 4 | Permanent | 4 | Permanent | 4 |
| Intensity | Low-Medium | 3 | Low | 2 | Very Low | 1 |
| Probability | Definite | 4 | Definite | 4 | Definite | 4 |
| Status | Negative | | Negative | | Negative | |

| | | | | | | |
|---------------------|-----------------|-----------|---------------------|-----------|---------------------|-----------|
| Confidence | High | | High | | High | |
| Significance | Moderate | 32 | Low-Moderate | 28 | Low-Moderate | 24 |

REMEDIAL MEASURES

- The minimum working area for an efficient and effective operation should be utilized and demarcated prior to the start of mining activities and the excavator operator must be informed in this regard.
- No mining will be undertaken in areas where reserves have not been adequately proved in order to avoid unnecessary/wasteful mining.
- Mining will be restricted to the proposed depth as described under the heading 'Mine methodology'.
- No activities will be permitted outside the approved mine area and demarcated phase, except for the removal of the north-eastern boundary pillar, as previously described.
- All root mass, if any, will be returned to the excavation or used in profiling the production faces and rehabilitation.
- Quarry development will take place with final rehabilitation objectives in mind.

SOILS

Soil is a complex mixture of eroded rock, mineral nutrients, decaying organic matter, water, air and billions of organisms, most of them microscopic decomposers. Soil forms when life-forms decay, when solid rock weathers and crumbles, and when sediments are deposited by erosion.

Mature soils are arranged in a series of zones called soil horizons, each with a distinct texture and composition that vary in different types of soils. A cross-sectional view of the horizon in a soil is called a "soil profile". Most mature soils have at least three horizons.

Colour indicates a lot about how useful a soil is for growing crops. For example, dark brown or black topsoil is nitrogen rich and high in organic matter. Grey, bright yellow or red topsoils are low in organic matter and will need enrichment to support most crops.

The average size of the spaces or pores in a soil determines soil permeability, i.e. the rate at which water and air move from upper to lower soil layers. Soil permeability is also influenced by soil structure: how soil particles are organised and clumped together. Soils vary in their contents of clay (very fine particles), silt (fine particles), sand (medium size particles), and gravel (course to very course particles). The proportion of the different sizes and types of mineral particles determines the soil texture. Loam soils which are comprised of roughly equal mixtures of clay, sand silt and humus, are the best soils for growing most crops.

Calcareous soils are those that contain free calcium carbonate and can also be regarded as alkaline soils. The term "dystrophic" refers to an imbalance in nutrients. Dystrophic soils are therefore soils that are rich in humus, giving them a brown colour. They have variable amounts of nutrients and are sometimes depleted of oxygen owing to the high concentration of humus. The term "leaching" refers to a process whereby various soil components are dissolved by water moving through the upper layers, carrying the dissolved material to lower layers. Highly leached soils are those where most of the nutrients, etc. have been leached from the upper layers.

SOIL PROPERTIES

Topsoil is a very precious, non-renewable resource with high conservation importance and is necessary for the effective rehabilitation of disturbances caused by development. The potential of soils to rehabilitate is defined by its depth, structure, texture, and sequence of soil horizons. It is therefore essential that where it occurs it be preserved and protected and if necessary obtained from outside sources to effect proper rehabilitation of disturbed areas.

The topsoil at the site is very limited (less than 20cm deep) but will be removed ahead of each phase and stockpiled to be reinstated as mining progresses as per the mine plan.

Mining will be restricted to the proposed depths. The topsoil removed will simply be reintroduced on the quarry floor and upgraded with manure to sustain the vegetation. Because of the lack of soil structure and topsoil, it is very important to upgrade the soil. Manure would be the preferred option and the applicant would have to import manure to the site or alternatively, topsoil can be fertilized with a balanced fertiliser such as 5:1:5 or 3:1:5 at 30g per m².

Therefore, mining could have a negative impact on the topsoil if the soil is not upgraded, because of the current state of the topsoil which is already poor; therefore risking further degradation. It is therefore very important to follow the proposed mining method and rehabilitation procedures, in order to upgrade the nutritional value of the topsoil and subsequently improve the state of this grazing unit.

Impact on the soil properties is rated low with mitigation.

Impact on soil properties

| | OPERATIONAL (no mitigation) | WEIGHT | OPERATIONAL (with mitigation) | WEIGHT | CLOSURE | WEIGHT |
|---------------------|--|---------------|--|---------------|----------------------|---------------|
| Extent | Site Specific | 1 | Site Specific | 1 | Site Specific | 1 |
| Duration | Medium Term | 2 | Short Term | 1 | Short Term | 1 |
| Intensity | High | 6 | Medium-High | 5 | Very Low | 1 |
| Probability | Definite | 4 | Likely | 3 | Probable | 2 |
| Status | Negative | | Negative | | Negative | |
| Confidence | High | | High | | High | |
| Significance | Moderate | 36 | Low | 21 | Insignificant | 6 |

SOIL EROSION

Soil erosion is a natural process, which, without disturbance, would balance itself with the formation of new soil. Any development that destroys the natural protective canopy of vegetation speeds up the process of soil erosion. Soil properties determine the erodibility of soils and their ability to support vegetation and this need be understood in assessing the potential for erosion and the suitability for rehabilitation. Soils susceptible to water erosion are normally silty, are weakly structured, have low organic contents and have poor internal drainage.

The erodibility index is determined by combining the effects of slope and soil type, rainfall intensity and land use. These aspects are represented by terrain morphology (soil and slope), mean annual rainfall and broad land use patterns.

Topsoils on the mining area are sandy and have a good draining capacity. This will render the soil to be less erodible. The topsoil (A horizon) of the mining area has more than 15% but less than 35% clay content and can be generally described as a loamy soil with a low erodibility factor of between 11-15. Under current circumstances, this soil is stable and no signs of erosion were noted.

However, the steep incline on the bottom section of the mining area will most definitely be subject to erosion after disturbance, 1) because of the slope and 2) the fact that the sand layer with good draining capacity will be removed from the site. Therefore runoff will cause erosion on the incline area, if the phases are not stabilized soon after disturbance. It is therefore imperative to follow the mine development plan and perform concurrent rehabilitation.

Erosion is therefore not regarded a high risk on the top, flat area, however, it is considered a high risk on the bottom, incline area. Erosion control measures must be implemented.

- 1) Phases 3, 5, 6 & 7 must be mined in the alternative slots, as provided in the phase development layout plan. This will create only one small slot/phase, which is exposed and vulnerable to erosion, at any given time. The immediate areas surrounding the exposed slot will either be still intact or rehabilitated to a 70% grass cover to absorb sheet wash, act as energy breakers and mitigated erosion.
- 2) Phase 8 (3m pillar) must stay intact and not be removed to keep water from the top flat area, washing over the disturbed incline area and creating mayor sheet wash and erosion.
- 3) Once a slot/phase is exhausted, it must be aggressively rehabilitated to establish a proper grass cover over a fairly short period of time.
- 4) Contours must be created on the incline area between phases 3&6 and 5&7. Runoff must be diverted to the eastern side of the site into areas that is well established with vegetation.

Thus, in natural state the potential of erosion during major rain falls is low at the study site, but after disturbance the impact increase to moderate without mitigation, considering that this is also a small area. The replaced topsoil on the slopes of the excavation will be exposed to erosion, but considering the remedial measures to be undertaken, the impact on soil erosion is predicted to be low-moderate with mitigation. A proper re-vegetation strategy is of however of the utmost importance. In addition, diminishing sand reserves towards the south-west could prevent miing of a portion of this area, further reducing the impact of erosion.



Figure 11: Erodability Index

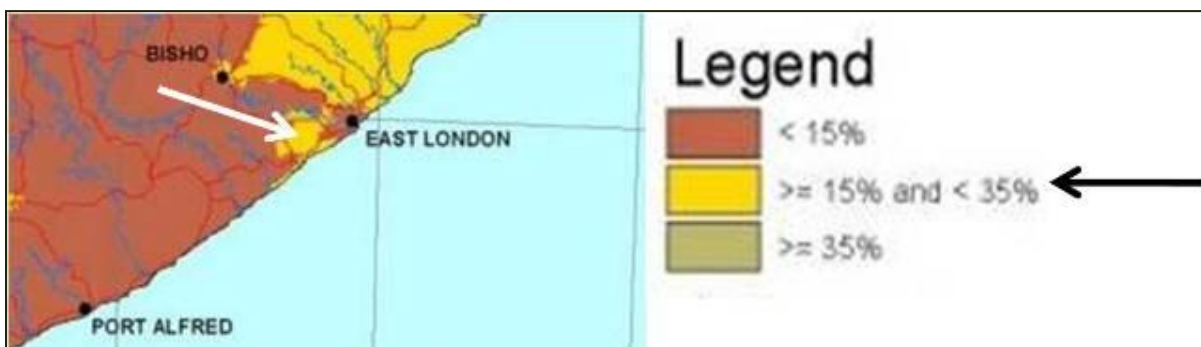


Figure 12: Clay Content of the topsoil

The existing haul road on the neighbors mine will be used and due to the gentle gradient of most of the proposed road; erosion would not be a consideration. However it will be protected with a proper wearing course and the necessary cross drains before mining commence. Spills of the cross drains must be establish in areas that are well vegetated to insure that erosion does not take place.

However, as previously indicated, the temporary access road, leading to phases 3, 5, 6 & 7 which will run east of the site, might lead to erosion due to the steep incline of this road. Therefore, it will only be lengthened as mining progresses towards following phases and will be ripped and rehabilitated once phase 7 is completed. If erosion occurs due to the temporary haul road, erosion gullies must be filled in immediately and vegetated; and the haul road must be shaped to tilt slightly eastwards, away from the quarry to allow water to be diverted into areas that are well established with vegetation. The contours created on the mine area can be extended, to create cross drains for the temporary access road, diverting water away from the site.

To reduce any potential surface flow within the mining area it is important that removal of vegetation ahead of the production faces is limited to the minimum. Topsoil of the study area is susceptible to wind erosion and wind could have an effect on the proposed re-vegetation strategy. The site could be protected by windbreaks.

Impact on soil stability.

| | OPERATIONAL (no mitigation) | WEIGHT | OPERATIONAL (with mitigation) | WEIGHT | CLOSURE | WEIGHT |
|---------------------|--|---------------|--|---------------|-----------------|---------------|
| Extent | Local | 2 | Site Specific | 1 | Site Specific | 1 |
| Duration | Long Term | 3 | Medium Term | 2 | Short Term | 1 |
| Intensity | Medium-High | 5 | Medium | 4 | Low-Medium | 3 |
| Probability | Definite | 4 | Likely | 3 | Probable | 2 |
| Status | Negative | | Negative | | Negative | |
| Confidence | High | | High | | High | |
| Significance | Moderate | 40 | Low-Moderate | 27 | Very Low | 10 |

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SOIL POLLUTION

Soil pollution can only occur should hydrocarbon spills occur or when 1) used oils and lubricants are purposefully drained into the soil, 2) storage facilities are destabilized or 3) if ablution facilities contaminate soils. At the quarry, none of these impacts is anticipated since trucks and earthmoving equipment will be well maintained at the maintenance workshop in East London. In addition, a

workshop at the farm could facilitate minor services and general repairs. Therefore, servicing of vehicles, fuel storage or establishment of a sewage system will not take place at the proposed quarry area. No other chemicals or hazardous substances will be used or stored at the site.

The penetration capabilities of soil structures can cause pollution plumes to migrate vertically and laterally, however considering the low-key activity and the fact that vehicles would be well maintained, chances of soil pollution is low since the source of soil pollution is low. Thus the impact is rated low.

HYDROCARBONS

Storage of all oils and lubricants as well as servicing of vehicles will be restricted to the offsite workshop of the applicant. Only emergency repairs will be done over drip trays within the mining environment hence no impact on soil is anticipated. Bulk diesel fuel, oils and lubricants will be stored at the offsite workshop of the applicant.

Due to the limited amount of vehicles that will be used on the site the worst case scenario would lead to very small hydrocarbon spills that will penetrate the soil immediately and will percolate to lower levels. The sub-soil layers however has a moderately un-penetrable profile thus any hydrocarbon spill could be scoped up. Use of fertilizers could assist in breaking down limited spills in short space of time which will preclude it from reaching ground or surface water. If a major spill in some way or another manner has to occur it will lead to extensive soil pollution and in such case a specialist approved by DWA will be called in to remedy the impact.

The impact is rated low under worst-case scenario conditions and insignificant under normal circumstances due to the limited spills anticipated in the quarry area.

SEWAGE

The sewage system will consist of a chemical toilet. Due to the small number of people (2-3) that will be onsite, limited soil pollution will therefore take place and a similar impact on the coliforms count in the soil and water is anticipated. The system must be maintained according to specifications stipulated by Municipal by-laws or by a local health inspector. Due to the absence of ablution facilities no effluent will be generated that could affect soils and groundwater sources inside or outside the study area. The anticipated soil pollution risk is rated low under worst-case scenario conditions and insignificant under controlled conditions.

WASTE

Domestic waste will be produced at the quarry but the waste streams (tins, paper, food) will be rather limited (0,5-1m³ per month) and will be removed to the nearest approved waste facility. Even in limited amounts, uncontrolled storage of waste could lead to littering of the surrounds through wind action, which could affect livestock, the neighbor and the surrounding environment. Therefore, provision for waste receptacles with scavenger proof lids must be made. Workers must be educated in terms of the handling of waste and an environmental awareness programme can be developed for workers, but it should be noted that this is not a requirement for mining permit applications.

Waste production will be limited at the quarry site and the impact on soils and surrounds is rated very low.

Impact of pollution on soils.

| | OPERATIONAL (no mitigation) | WEIGHT | OPERATIONAL (with mitigation) | WEIGHT | CLOSURE | WEIGHT |
|---------------------|--------------------------------|-----------|----------------------------------|----------|----------------------|----------|
| Extent | Local | 2 | Site Specific | 1 | Site Specific | 1 |
| Duration | Short Term | 1 | Short Term | 1 | Short Term | 1 |
| Intensity | Low-Medium | 3 | Low | 2 | Very Low | 1 |
| Probability | Likely | 3 | Probable | 2 | Unlikely | 1 |
| Status | Negative | | Negative | | Negative | |
| Confidence | High | | High | | High | |
| Significance | Low | 18 | Very Low | 8 | Insignificant | 3 |

REMEDIAL MEASURES

- All remaining *in situ* soils (topsoil) will be removed and conserved during future development stages and will not be sold. It will be stored along the perimeter of each phase and it will be piled to a maximum height of 1m. Once removed it will be seeded with the specified seed mixture, upgraded with fertilizer, irrigated if possible and lightly covered with some of the available grass cuttings removed from development areas.
- Topsoil must be removed ahead of the production face and be reinstated as soon as possible once extraction has been completed to limit the erosion potential. All stored topsoil must be reinstated and used for rehabilitation.
- Before mining of phase 2 starts, 3m high hessian cloths must be erected on the north-western boundary line of the neighbor, to mitigate the impact of dust on his property. Also see mitigation measures described under the heading "Air Quality".

- Where needed topsoil stockpiles will be protected from wind action by erecting shade cloth screens (1,5m high) across the wind path or cover it with Hessian. To reduce the impact of wind, topsoil will be returned as soon as possible after disturbance to each slot/phase.
- If topsoil from other development areas is sourced it must come from areas with zero alien/invasive plant infestation.
- Removed topsoil will not be mixed with sub-soils.
- All available stored root mass will be spread first and covered by topsoil before fertilized and seeded.
- Topsoil will be reintroduced to disturbed areas, keyed-in slightly with lower horizons by ripping it lightly along the contour and fertilized as follow:
 - a) If the soil is dry, the area must be watered thoroughly a day or two before the soil preparation begins.
 - b) Spread Super Phosphate at a rate of 50g per m² over the entire disturbed area, this is a general recommendation, made in the absence of a soil test. Dig the area over incorporating the Super Phosphate and manure to a depth of approximately 15 cm.
 - c) Never leave compost as a layer on top of the soil as it dries out far more easily than soil does, and will not allow the seed to stay moist enough during the critical germination period.
 - d) Spread a balanced fertiliser such as 5:1:5 or 3:1:5 at 30 g per m² and rake into the surface of the soil. The soil should be ready to be seeded with the prescribed seed mix – see “Flora’ heading.
- All vegetation removed from the mine area will be stockpiled, protected against wind erosion and re-introduced as mulch to seeded areas.
- In the event that the removed vegetative material is deficient the applicant undertake to obtain all available manure/chipped vegetative matter (without alien seed) and introduce it to profiled areas to improve the fertility and micro-climate of the soil, which in turn would facilitate improved germination and percentage soil cover.
- Upgrading of soils and re-vegetation of disturbed areas will be done concurrently with mining.
- Any erosion on the mine area would immediately be filled in and compacted and erosion-monitoring programme will be implemented as a cradle to grave process.
- Phases 3, 5, 6 & 7 must be mined in the alternative slots, as provided in the phase development layout plan.
- Phase 8 (3m pillar) must stay intact and not be removed during or after mining. The sides must be sloped to 1:3 gradient, seeded and maintained.
- Once a slot/phase is exhausted, it must be aggressively rehabilitated to establish a proper grass cover over a fairly short period of time.
- Contours must be created on the incline area between phases 3&6 and 5&7. Runoff must be diverted to the eastern side of the site, into well vegetated areas. The contours must be 25cm high, 20cm wide at top. The contour between phases 3& 6 must have a spill drop, not shorter than 8m from the mining site. The contour between phases 5&7 must have a spill drop not longer

than 3m from the mining site. This will ensure that the water diverted from the first contour does not spill over the water diverted from the second contour which would increase erosion potential outside of the mine area. Diverting runoff to the eastern side would reduce the risk of erosion at the spill areas.

- The spill area must be protected by semi buried v-shape gabion structures with dimensions of at least 1m x 0,5m x 0,3m.
- The inside of each cross drain will be properly stabilized and seeded.
- Storm water run-off may not impact negatively on the surrounding area. The applicant will take full responsibility to restore any disturbances caused outside the mine area, if the storm water causes damage.
- The storm water control measures described under the headings 'Surface water' will be strictly implemented.
- Storm water control structures, will be retained and maintained until closure. If needed a soil conservation officer or expert will be employed to assist in constructing storm water control structures.
- The top, flat area of the quarry floor will show a 1% gradient towards the north-east. Once the boundary pillar is removed, the site will drain freely into the north-east area that is well established.
- Mining will progress as described under the heading of 'Mine methodology'.
- Once the mined material is removed, the topsoil replaced and prepared, the disturbed area must be seeded with the specified seed mixture.
- The amount of vegetation removed ahead of the production face will be reduced to the minimum required for optimal development.
- The mining areas will be developed and rehabilitated in phases as proposed in the development plan to reduce the extent of the disturbed area and prevent erosion of the mining environment.
- Vehicles would not deviate from the temporary access road. Movement of vehicles in the quarry area will be limited to what is necessary to reduce potential impact on areas outside mine boundary.
- The access road will be protected from erosion with a proper wearing course and the necessary cross drains, which could be an extension of the contours on the mine area. Outlet areas of cross drains will divert storm water into well established vegetated areas to prevent erosion. If necessary, energy breakers must be placed at the outlets.
- The temporary haul road will run east of the site. This haul road will only be lengthened as mining progresses towards the next phases and will be ripped and rehabilitated once phase 7 is completed. If erosion occurs due to the temporary haul road, erosion gullies must be filled in immediately and vegetated; and the haul road must be shaped to tilt slightly eastwards, away from the quarry to allow water to be diverted into areas that are well established with vegetation.
- Disturbance of the soil and vegetation zones around the quarry will be prohibited.
- Portions of production areas will be profiled and vegetated as an integral part of mining.

- When needed, soil could be irrigated using water obtained from the borehole from Mr. Ross's farm.
- Vehicles will not drive over rehabilitated areas to prevent dieback of established vegetation.
- Any erosion that develops will be filled in with gravel and sand, compacted, covered with topsoil and seeded. Should erosion on the slopes become problematic:
 1. Any erosion rills or gullies that develop will be filled in with subsoil, compacted but upper layer to be scarified to bind with topsoil, top dressed with soil, fertilized and seeded.
 2. Such areas will be provided with a mulch/manure layer of at least 5cm thick.
 3. Trunks/branches of trees removed (non seed-bearing alien trees) from other undisturbed properties and to be negotiated with such landowners will be placed in rows along the contour 5m apart and pegged to the ground to reduce water speed and curb erosion.
 4. In worst case scenario geofabric or Soil Saver (natural organic sheet material with seeds) will be pegged onto the slopes after spreading of topsoil and seeding was effected. A soil conservation officer or expert will be appointed to oversee the process.
 5. If wind erosion becomes a problem, shade cloth screens will be erected (north-south direction) across the wind path every 20m. Shade cloth will be properly attached to 2,5m (1m sub-surface) wooden poles and shade cloth will stretch to the ground surface.
- No fuel, oil and lubricants will be stored onsite.
- Emergency repairs will be done over drip pans.
- Maintenance of vehicles will be done at the offsite workshop to a leak free condition.
- Hydrocarbons shall not be drained into the soils nor shall used filters and hydrocarbon-contaminated parts be buried at the site, but will be removed to an approved waste site or recycling facility.
- Making use of bio-remediation facilitated by a specialist company will negate larger spills whilst smaller spills could be treated with fertilizer to break it down or be scooped up by front-end loader to a hazardous waste site.
- Peatsorb or sawdust will be used to contain larger spills and some of this material must be on site as a contingency measure.
- No other hazardous chemicals will be used at the site.
- The pit toilet will be maintained and could be used at closure as a site to plant an indigenous tree.
- In case of emergencies used oils and lubricants will be siphoned in receptacles with proper lids and be disposed of at a registered recycling facility immediately.
- For emergency cases, a receptacle will be provided for used filters and oil contaminated vehicle parts and will be respectively dispose of at a registered waste facility and scrap yard immediately.
- All quarry/plant debris must be removed before topsoil is re-introduced to disturbed areas.

LAND USE AND LAND CAPABILITY

Although land use is not a feature of the environment as such, it does represent the current status of the land surface as a whole, and therefore also reflects the condition of the environment. Land use is

reflected by land use patterns, based on terrain morphological units. Other than natural disasters, humans have the largest impact on the bio-physical environment. Therefore, people have the responsibility of managing the environment in a sustainable manner to ensure the continued existence and maintenance of the biodiversity of the earth.

In the area surrounding the proposed mining site, the impact of human activities is clearly visible. About 400m south-east from the site and area of about 9.5Ha of Coastal Forest was clear to establish the Cosy Corner residence. To the north-east an area of about 10Ha abuts the mining site and was mined without approval. Large areas are still unrehabilitated and it appears that mining still continues at this site. In general, most of Coastal Forest vegetation was removed to establish farm land, mainly for cattle and sheep farming and some crop farming.

The land, in which the mining area falls, is therefore also zoned agriculture.

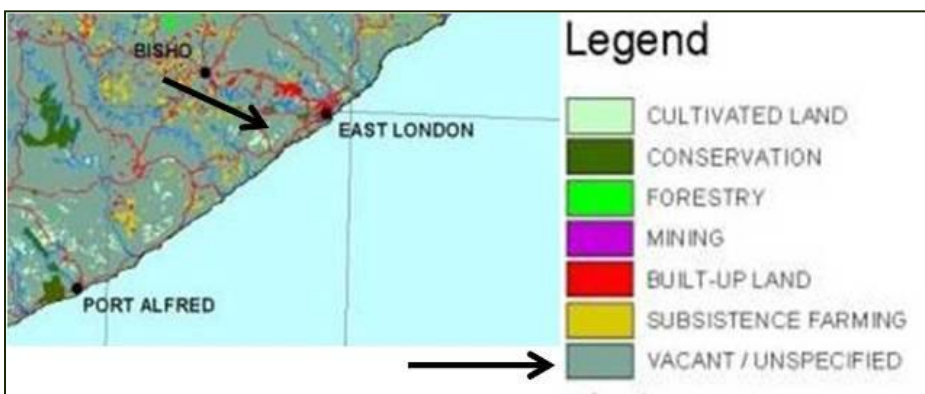


Figure 13: Land use of the area

At the mining site, this 1.5Ha portion of land is used for grazing by the landowner, Mr Ross. As with the surrounding area; bush clearing occurred many years ago to establish a grazing unit. The site specifically is covered with a secondary grass cover and the bottom, incline area is overgrown with weeds. After the sand deposit is removed, the grass unit could be re-established and weeds will be removed.

Thus in terms of land use, one of the affected persons will be the land owner, since he will not be able to use this portion of land for grazing while mining is in operation. Once the area is rehabilitated, it will be restored back to a grazing unit. It would be in the interest of Mr Ross, who is the applicant but also the landowner, to rehabilitate the site and not allow it to degrade.

The residence at Cosy Corner might experience impact on the recreation use of land under application, since the site is very close to the neighbor's residential home and is visible for the Cosy Corner residents and will therefore affect the ambiance that residents of the area enjoy in this rural

area. The only mitigation measure for this impact is to follow an aggressive rehabilitation plan. Since mining is not considered to be change of land use, thus the impact is temporary.

It must also be noted that, no resident at Cosy Corner have complained or objected to the illegal mining taking place on Mr Lustgarten’s property and therefore it can be concluded that no significant impact has been experienced by the residence in the past with regard to land capability and use, since there is no proof of any complaint. However, regardless of such circumstances, the applicant will follow the correct procedure and the aggressive rehabilitation plan will be followed to restore all recreational use of the land, regardless of other mining companies’ status.

No permanent infrastructure will be erected and therefore no impact on land capability and land-use is anticipated in this regard. Considering the ecological and agricultural status of the mine area the impacts on land use and land capability could be rated as low (with mitigation measures) during mining and positive at closure (once rehabilitated).

Impact on land capability and land use

| | OPERATIONAL (no mitigation) | WEIGHT | OPERATIONAL (with mitigation) | WEIGHT | CLOSURE | WEIGHT |
|---------------------|--|---------------|--|---------------|-----------------|---------------|
| Extent | Site Specific | 1 | Site Specific | 1 | Site Specific | 1 |
| Duration | Medium Term | 2 | Short Term | 1 | Medium Term | 2 |
| Intensity | Low -Medium | 3 | Low | 2 | Low | 2 |
| Probability | Likely | 3 | Likely | 3 | Likely | 3 |
| Status | Negative | | Negative | | Positive | |
| Confidence | High | | High | | High | |
| Significance | Low | 18 | Very Low | 12 | Very Low | 15 |

REMEDIAL MEASURES

- All available *in situ* topsoil removed shall be conserved and handled as prescribed under ‘soil remedial measures’.
- The quarry will be seeded with the prescribed seed mixture to ensure a surface cover that will stimulate the return of other plant species.
- Alien/invasive plant infestation will be prevented through an alien eradication programme.
- Rehabilitation will be done concurrently with mining and divided into a phase development approach, as proposed by the mine plan: as soon as the first phase has been developed rehabilitation will commence. Progress will be monitored and audited against proposed rehabilitation schedule to improve land use options and land capability.

- The slopes shall be profiled to such an extent that the area could be used for grazing land. Rehabilitated areas would not be grazed by any domestic animals within two years after closure was granted.
- No fires would be allowed on the property to safeguard the land use of the property as well as those of abutting properties.
- Production areas/faces will be made stable/safe.
- At closure, the temporary haul road will be rehabilitated.

FLORA

Vegetation plays an important role in maintaining ecosystems, stabilizing soils, maintaining the aesthetics of an area and in providing income for landowners. When development is anticipated the vegetation structure therefore needs to be analyzed, rare or endangered plant species must be identified and economic value of plant cover must be determined. Vegetation structure is mostly determined by the geology and climatic factors and the Eastern Cape coastline represents a climatic transition between the temperate rainfall region to the south and west and subtropical rainfall region to the east and a variable geology. This results in a diverse range of plant communities, characteristic of Cape Flora and subtropical flora.

CONSERVATION STATUS

In general the mining site falls within an area classified as Coastal Forest and Thornveld. This area specifically hosts according to the Acocks Subtropical Transitional Thicket, which is a dense, almost impenetrable woody thicket and is specie rich.



Figure 14: Vegetation of the general area

The coastal forest and thornveld is not all forest today, but in this area there can be no doubt that the whole area was naturally some form of forest. The veld today is more or less open thornveld with numerous and extensive patches of forest. The grassveld constituent is rarely a pure, uniform grassveld, but is rather scrubby, full of tall herbs, shrubs and tall coarse grasses, showing how strong the successional movements towards forest is (Acocks).

Transitional Coastal Forest between Kei and the Keiskamma is very similar to the drier parts of the typical forest except that it lacks such species as *Macaranga capensis*. *Croton sylvaticus* and *Schefflera umbellifera*, while *Ptaeroxylon*, *Schotia* spp. *Cassine* spp. and *Euphorbia grandidens* tends to be more common and *E. triangularis* sometimes occurs, showing that it is transitional to the drier Alexandria Forest. It constitutes an important source of vegetation for browsers and is therefore of significant importance to support especially buck species.

This vegetation type is quite resistant to external impacts but once disturbed it does not recover over the short or medium term. It mainly reproduces through vegetative means, but since this site was cleared for establishing of a grazing unit, resprouting is unlikely to occur, even if all current material is removed and reworked back into the soil. There is a small strip of land, outside the mine area, to the south-west of the site that is sandwiched in between the mine area and the access road that leads to the residential area; where some of the original vegetation is still intact. However, the surrounding areas have mainly been cleared for grazing purposes, with patches of forest clumps scattered around.

SITE SPECIFIC VEGETATION

At the site, all the original vegetation that did occur was removed to make way for the grazing units. Currently the site is covered in kweek grass, with some *Cirsium vulgare* (a weed) and small thorn trees in between. On the bottom incline area *Solanum linnaeanum* (weed) has overgrown the area.

Clearing the site and establishing kweek will therefore be a benefit to the applicant who is also the landowner.



Figure 15: Grass cover



Figure 16: *Cirsium vulgare*



Figure 17: Small thorn tree



Figure 18: *Solanum linnaeanum*

No vegetation survey was conducted, since the site was cleared to establish a grass land and no indigenous vegetation was identified at the site during the site inspection.



Figure 19: Small original Coastal Forest vegetation strip between the mine site and the access road leading to the residential area.

Mining will therefore clear this grass unit, together with the weeds and once mined out; the site can be re-established with *Cynodon dactylon*. Therefore, mining would temporary disrupt the grazing unit, but since the site will be mined in phases with concurrent rehabilitation to follow; this site can be restored to a functional grazing unit, free of weeds.

Although *Cynodon dactylon* (common Bermuda grass) originates from East Africa, there is evidence that it grew all over Africa before the division of the continents. It is therefore considered to be indigenous to South Africa. This grass has a creeping growth habit, but is far less invasive than kikuyu. Bermuda grass is one of the most heat and drought tolerant species, using less than half as much water as kikuyu at maturity.

Thus establishing Bermuda grass will improve the stability and grazing unit of the mined out area. It will reduce the erosion risk on the slopes and will out compete weed growth. Nevertheless, it is imperative that the phased approach be followed to ensure that disturbance is restricted to the minimum. In order to protect disturbed areas and to prevent unnecessary visual impact the minimum vegetation must be removed at any given time. The impact on removing the current vegetation and replacing it with Bermuda grass is rated very low with mitigation.

Although no large/mature alien trees was identified at the site, with any disturbance alien vegetation infestation is always a risk factor thus, the necessary control measures need to be implemented and an alien control programme must be followed.

ALIEN CONTROL MEASURES

According to land classification the invasion potential of the land concerned is rated medium and disturbed land should be treated with care.

Although herbicides exist that can kill almost any plant invader, it is not always possible to use them. The use of herbicides in South Africa is strictly controlled, and chemicals must be tested and registered for use against particular plants or groups of plants before they can be recommended (Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act of 1974 with Regulations and Amendments).

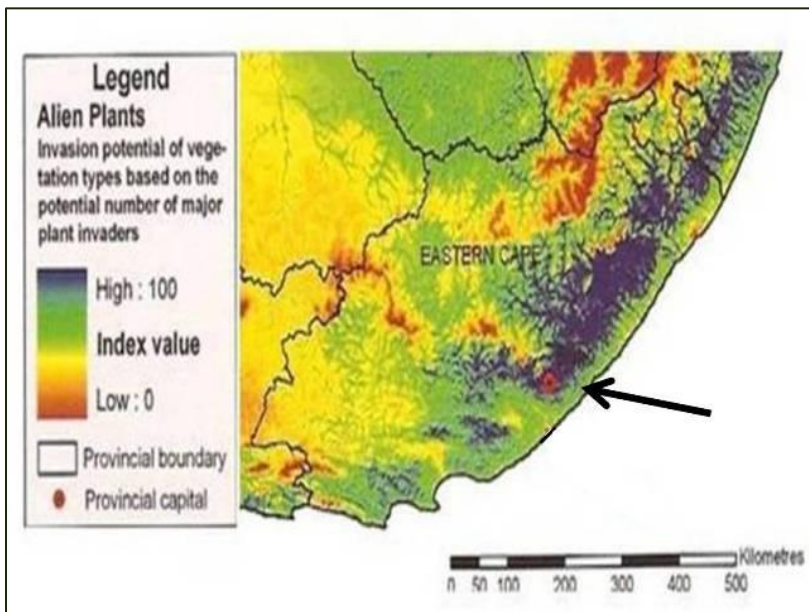


Figure 20: Potential Alien Plants Invasion Index

According to land classification the invasion potential of the land concerned is rated medium and disturbed land should be treated with care.

Seeding plants should be hand-pulled. Immature plants should either be ring-barked, dug out, or the stems should be cut as near as possible to the ground. The bark on the remaining stem stub must be peeled off into the ground, once the stem has been cut.

Mechanical eradication is an effective method of control as long as the stems of older plants are severed as low as possible, thereby ensuring that no buds will re-sprout.

Considering the low aesthetic value of the vegetation, and the low conservation value thereof; the removal of the vegetation during the mining process and the limited area to be affected, the impact is rated of very low significance, with mitigation.

Impact on the flora

| | OPERATIONAL (no mitigation) | WEIGHT | OPERATIONAL (with mitigation) | WEIGHT | CLOSURE | WEIGHT |
|---------------------|-----------------------------------|-----------|-------------------------------------|----------|----------------------|----------|
| Extent | Site Specific | 1 | Site Specific | 1 | Site Specific | 1 |
| Duration | Medium Term | 2 | Short Term | 1 | Medium Term | 2 |
| Intensity | Low-Medium | 3 | Low | 2 | Very Low | 1 |
| Probability | Likely | 3 | Probable | 2 | Unlikely | 1 |
| Status | Negative | | Negative | | Neutral | |
| Confidence | High | | High | | High | |
| Significance | Low | 18 | Very Low | 8 | Insignificant | 4 |

REMEDIAL MEASURES

- Mining would be restricted to the areas demarcated by the mine plans and no vegetation outside the demarcated mine boundaries will be removed.
- The rehabilitation plan will be implemented in accordance with the time frames set. A phased re-vegetation programme as discussed under 'mine methodology' will be followed to ensure timeous rehabilitation of disturbed areas in order to increase control over the process and to limit irrigation required.
- Indigenous vegetation outside the mine boundary shall not be affected by mining activities, with specific reference to the small portion of vegetation south-west of the site. Furthermore, no vegetation outside the mine areas will be removed and spread of alien vegetation will be prevented through pulling all invasive plants out. Juvenile alien plants should be hand-pulled and not left to mature.
- Only one haul road will be used and vehicles will not traverse virgin land. The temporary haul road will be rehabilitated as soon as mining ceased.
- All slope areas will be properly stabilized through compaction to ensure proper establishment of grass vegetation.
- The mining area will be reclaimed to a grass cover. Disturbed areas will be re-vegetated with a grass cover by seeding with *Cynodon dactylon* (Bermuda grass). For best results it can be established in the following way:
 - Spread Super Phosphate at a rate of 50g per m² over the entire area; this is a general recommendation, made in the absence of a soil test. Dig the area over incorporating the Super Phosphate and even compost to a depth of approximately 15 cm. Do not leave compost as a layer on top of the soil as it dries out faster than soil, and will not allow the seed to stay moist enough during the critical germination period.
 - Break down clods to create a fine seedbed. Spread a balanced fertiliser such as 5:1:5 or 3:1:5 at 30 g per m² and rake into the surface of the soil.

- Sowing the seed: Ration of about 1 kg per 100 m² is sufficient for a proper cover. Broadcast the seed over the area as evenly as possible by hand, or by using a drop seeder (a fertiliser spreader will do, as long as it does not crush the seed). To achieve an even spread, split the amount of seed in two, moving up and down with one half and across and back with the other. The seed is very small so it can be mix with sand to bulk it up.
- Rake the area lightly (using a steel rake), so that most of the seed is covered by no more than 1 cm of soil. This seed needs light to germinate so don't bury it too deeply.
- Compacting: It is essential to compact the area lightly. A roller can be used or simply trample lightly under foot. This step is very important, as it brings the seed into direct contact with moist soil, reduces wash-away and initiates capillary action (the movement of water upwards through the soil profile).
- Watering: Keep the area moist at all times for the first two weeks. By then the seed will have germinated and watering frequency should be reduced. It might be necessary to water more than once a day and avoid puddles. Although this is a relatively drought tolerant grass at maturity, it still needs regular watering during establishment. Irrigation can be reduced once the root system is established.
- Continuous fertilisation: 50 g per m² of 5:1:5 or 3:1:5 three times a year. Slow release formulations are recommended.
- All root mass recovered after mining could be pulverized/mulched and reworked into the topsoil.
- Once an area is vegetated, no traffic will be permitted in such area. Driving in non-mining areas will be prevented.
- The temporary access road will be ripped, top dress with topsoil and seeded once mining cease.
- Veld fires will be prevented since it could affect the vegetation as well as impacts on soil stability and fertility. No fires will be permitted in the mining and the required fire extinguishers will be made available.
- Should re-vegetation be exceptionally slow due to dry conditions the seeded area will be irrigated once per week with a sprinkler until a sufficient ground cover has been established. Water for irrigation purposes will be obtained from the borehole from Mr Ross's property.
- Should re-vegetation fail due to climatic conditions it will be repeated the following growing season.

FAUNA

Animals play an important role in maintaining ecosystem functioning for example pollination, spreading of seeds, removing of pests, trimming of vegetation and therefore determining penetrability of vegetation and generation of manure etc.

Normally, the thicket habitat poses a definite ecological niche for animal species since the canopy provides adequate forage, nesting place and protection for avian fauna whilst the under storage provide adequate protection and forage for browsers. However, at the mining site, all the vegetation providing these ecological niches was removed. The patches of Coastal forest left can still provide

habitat for these animal species; however, the secondary grass vegetation does not provide much habitat nesting for the wild animals, but only for small rodents and some reptiles and insects. Since this is also a farm land, this area is and will continue to be used to provide feed for cattle.

The mine area revealed no large or medium size mammals during the site visits, not to say that they do not occur or visit the area from time to time. In fact, Bushbucks (*Tragelaphus scriptus*) are spotted on regular basis in the area. They are in particular mainly browsers, but on rare occasions will consume grass. They are selective feeders, but during hardship are able to adapt their feeding habits for the sake of survival. Thus it is not uncommon to notice bushbuck in this area, where most of the original coastal forest has been replaced with grass lands. Bushbuck has obviously adapted to the surroundings and still has access to the smaller patches of coastal forest that has not been disturbed and falls outside of the mine area. Usually bushbucks are more active during the early morning and part of the night, but also fairly active during the day. Bushbuck's preferred habitat is however dense bush along river courses, since this antelope is always found close to permanent water courses.

Other wildlife that could be present in the area include: antbear (*Orycteropus afer afer* -rare), blue dyker (*Philantomba monticola* - rare), common duiker (*Sylvicapra grimmia*) and grysbok (*Raphicerus melanotis*). In terms of the Amatola Management Plan two rare species, *Macrelaps microlepidotu* and *Acontias plumbeus* may occur in this area, but since the area is subject to crazing cycles and human interference, especially considering the presence of the residential development and abutting illegal mining and other farm practices, it is likely that these animals would have fled to the coastal forest that is still intact.

Other anticipated wildlife will include smaller reptiles and rodents (rats, mice, lizards, and snakes (puff adder, night adder, boomslang, skaap steeker and mole snake) as well as small mammals such as hare and wildcat. It must be emphasized that the proposed mining site poses no significant faunal niche. Most of the rare animal's habitats are associated with riverine environs, which preclude their existence in the study site, since the site is on a hill and not within a river environment. The site is 1.5Ha in extent covered with secondary grassland, which might provide feed for some wild animals, but secondary grassland does not provide habitat for wild animals, except for some small rodents, reptiles, insects, etc. However, the mine area is situated in an area that is considered a faunal corridor and larger animals taking refuge in the Coastal Reserve may roam the area during the night. Therefore the site will be rehabilitated and care must be taken.

Mining would be restricted to a limited area and the slow extraction rate would provide adequate time for slow migration from the affected area and be sustained in the similar adjoining habitats. The patches of Coastal forest left will remain to provide habitat for these animal species and mining will not impact on these habitats. Since this is also a farm land, this area is and will continue to be used to provide feed for cattle, thus this small area to be mined will not be rehabilitated to coastal forest vegetation but to grazing land. It must also be noted that human activities such as residential development was establish in prime coastal forest compromising a very large section of habitat

reserved for these indigenous animals. In addition, illegal mining activities and farming also impacts on the flora and fauna in the area. The fact that some wildlife is still spotted in the area is an indication of the animals adapting to the collective impact of human activities.

Indiscriminate hunting/trapping/poaching could be a potential problem and the necessary discipline and monitoring has to be enforced. The applicant will take responsibility for any animal that is proved to be killed by members of quarry staff. Strict control measures will be put in place and severe penalties will be applicable if any animal on site is poached.

Since the site is small and will be fully rehabilitated no permanent or significant impact will be imposed on species diversity, forage patterns or migration. The impact on the fauna at the site is rated as very low, provided that proper grassland is established.

Impact on fauna.

| | OPERATIONAL (no mitigation) | WEIGHT | OPERATIONAL (with mitigation) | WEIGHT | CLOSURE | WEIGHT |
|---------------------|--|---------------|--|---------------|----------------------|---------------|
| Extent | Local | 2 | Site Specific | 1 | Site Specific | 1 |
| Duration | Short Term | 1 | Short Term | 1 | Medium Term | 2 |
| Intensity | Medium | 4 | Low | 2 | Low | 2 |
| Probability | Likely | 3 | Probable | 2 | Unlikely | 1 |
| Status | Negative | | Negative | | Neutral | |
| Confidence | High | | High | | High | |
| Significance | Low | 21 | Very Low | 8 | Insignificant | 5 |

REMEDIAL MEASURES

- Handling of fuels will be in accordance with all applicable legislation to prevent pollution incidents.
- Movement of vehicles will be restricted to the authorized mine area.
- No animals entering or settling in the mine area will be disturbed or killed and this requirement will be included in the environmental awareness programme, which must be discussed with workers on an annual basis by the owner of the proposed quarry but preferably by a competent environmentalist.
- No hunting or snaring would be allowed outside or inside the mine area and the applicant will implement a severe penalty system for people transgressing this requirement. In addition, the owner or manager will remove any of the staff caught interfering with wildlife from the site immediately.

- All animals found on working areas where they may be injured, will be relocated to areas outside the mine area.
- Nesting sites will be temporarily excluded from the mine area or be carefully relocated.
- Areas to be cleared will be swept before vegetation is removed. Relocate any Amphibians or herpetofauna and slow moving animals to areas outside the mining areas in an unharmed manner.
- Disturbed areas will be properly rehabilitated as per the process outlined in the re-vegetation programme.
- Veld fires will be prevented by not allowing any open fires in the mine areas or smoking outside the mine areas.
- Mining area will be clearly demarcated and areas outside it will be out of bounds.
- Production faces will be profiled properly to ensure that it does not hold any danger to animals and to facilitate proper re-vegetation.

WATER

SURFACE WATER

The site is located in the Keiskamma River catchment area. The Keiskamma River is approximately 263 km long with a catchment area of 2 745 sq. km. About 11% of the Keiskamma catchment is under agriculture. Most of this comprised subsistence farming and commercial forestry with some temporary commercial irrigated agriculture. Approximately 27% of the catchment is degraded, comprising mainly degraded grassland and bushland. Roughly 57% of the Keiskamma catchment is natural and consisted primarily of bushland, grassland and forest with some scrubland also present. Urban development accounts for approximately 5% of the catchment land-cover and this comprised mainly residential development (South African Estuaries: Catchment Land-cover). More specifically the site falls within two smaller coastal rivers namely the Nchera River is about 1.3 km east of the site and the Tylomnqa River which is about 6.8km west of the site. There is a very small drainage/stream running 130m west from the site, is only about 1km in length and is better known to the local people as "Ross's Creek".

There is very little information available regarding these water systems. The site itself does not host any water system as it is situated on a hill, but uncontrolled runoff from the mining area could increase the silt laden in the stream below, with the consequence of smothering the stream vegetation. This stream runs south-west of the site and is directly abutting the entire length of the Cosy Corner settlement, thus it will be protected by retaining most of the runoff within the excavation and diverting excessive run-off water from the site, to the south-east of the site. This will

filter out any possible silt received from the site and effectively mitigate the possible impact on the stream. This strategy will also effectively mitigate any potential erosion that might develop on site. In addition, the nature of stream environments is dynamic and increase in silt would eventually be absorbed in the form of wetland vegetation. The mining area will however be beacons off and no disturbance outside of the mine area will be allowed (see discussion under the heading “Soil”). Also, consideration must be given to the fact that the areas surrounding the stream is agricultural grounds and could also lead to an increase in silt in the stream due to runoff received from ploughed lands. Nevertheless, this mining venture will however place the necessary mitigation measures in place to prevent run-off to flush into the stream.

Mining will not alter any drainage patterns. As mining progresses and the disturbed area become larger and sheet water flow will increase, which could result in erosion and increasing the silt load of runoff. It is vitally important to develop the phases in alternative pattern and to maintain the 3m wide pillar (phase 8), as described in the mine development plan, as well as to develop the contours between phases 3&6 and phases 5&7, with outlets into well established vegetated areas, as described under the heading “Soil”; to mitigate sheet flow and erosion. If all these parameters are followed, the impact of mining on surface water is rated very low.

Impact on surface water quality

| | OPERATIONAL (no mitigation) | WEIGHT | OPERATIONAL (with mitigation) | WEIGHT | CLOSURE | WEIGHT |
|---------------------|--|---------------|--|---------------|----------------------|---------------|
| Extent | Local | 2 | Site Specific | 1 | Site Specific | 1 |
| Duration | Medium Term | 2 | Short Term | 1 | Short Term | 1 |
| Intensity | Low Medium | 3 | Low | 2 | Very Low | 1 |
| Probability | Likely | 3 | Probable | 2 | Unlikely | 1 |
| Status | Negative | | Negative | | Negative | |
| Confidence | High | | High | | High | |
| Significance | Low | 21 | Very Low | 8 | Insignificant | 3 |

GROUNDWATER

Mining will be restricted to 2-1.5m below the current contour, following the natural incline of the site, thus no ground water source will be penetrated or exposed during mining, since the depth of ground water exceeds 30m. Taken the extent of the operation into consideration, infiltration of sediment and hydrocarbons and solvents into the soil will not affect the primary aquifer. Since there would be limited waste volumes onsite and no hydrocarbon or chemical storage on the property, the impact is rated low with mitigation. Because of the limited extent of the mine, recharge of the

aquifer will sparsely be affected, since the borehole water will only be used for rehabilitation when necessary and dust suppression. The impact can be rated as very low with mitigation.

GROUND WATER QUALITY

SEWAGE FACILITIES

The proposed chemical toilet will not cause an increase in coliform levels of perched aquifers as well as the main aquifer because of the reason provided above. Furthermore, the limited time that this facility will be in place at one given point will reduce the potential impact and would be less than the impact of sewage systems at residences on the farms in the area.

HYDROCARBONS

No hydrocarbon storage or draining would take place within the mine area therefore a negligible impact is anticipated. Vehicles will be well maintained off site and will also not be cleaned onsite. It should also be recognized that hydrocarbons are biodegradable and small spills will quickly be naturally remedied.

WASTE

The mining site will host very little waste that could affect groundwater quality. The waste stream will be restricted to household waste, which will be deposited in 200L drums fitted with a proper lid. When filled it will be emptied at the nearest approved waste site.

'Industrial waste' will be restricted to scrap metal and machine parts, which will not be stored at site and immediately disposed of at a registered recycling facility. Considering the above, no treatment facilities are required for the site. The impact is rated negligible.

WATER CONSUMPTION

Water for dust suppression and re-vegetation process will be supplied by means of a water tanker to be filled from the boreholes on the farm of Mr Ross. Drinker water would be kept in a clean PVC container and topped up on daily basis. With the limited extent of the mine (1.5Ha), recharge of the aquifer will sparsely be affected, since the borehole water will only be used for rehabilitation if necessary and for dust suppression on windy days. Water to be used will not exceed 10 000L per day, thus the increase in water usage will be low at the site. Re-vegetation will also coincide with the rainy seasons to ensure that no extra water is used.

Impact on ground water quality & reserves

| | OPERATIONAL (no mitigation) | WEIGHT | OPERATIONAL (with mitigation) | WEIGHT | CLOSURE | WEIGHT |
|---------------------|-----------------------------------|-----------|-------------------------------------|-----------|----------------------|----------|
| Extent | Local | 2 | Site Specific | 1 | Site Specific | 1 |
| Duration | Medium Term | 2 | Short Term | 1 | Short Term | 1 |
| Intensity | Medium | 4 | Low-Medium | 3 | Very Low | 1 |
| Probability | Likely | 3 | Probable | 2 | Unlikely | 1 |
| Status | Negative | | Negative | | Negative | |
| Confidence | High | | High | | High | |
| Significance | Low-Moderate | 24 | Very-Low | 10 | Insignificant | 3 |

REMEDIAL MEASURES

- The chemical toilet will be maintained to Municipal specification, will be inspected on a regular basis and be located within the excavation.
- The excavation will be free draining and runoff from the production faces will be diverted into well established areas east of the site, as prescribed under the heading "Soil".
- Water dust suppression and re-vegetation process will be supplied by means of a water tanker to be filled from the boreholes on the farm.
- Drinking water will be brought to site on a daily basis.
- No storage of hydrocarbons will take place onsite.
- Mining will be restricted to the proposed depth and footprint.
- No foreign or unapproved material/substance will be dumped or stored within the footprint of the mine or office areas.
- No stockpile of any nature will be placed outside the mine area.
- Vehicles will not use alternative roads or damage vegetation outside the approved mine boundary.
- Waste will be contained in receptacles stationed at appropriate areas within the excavation and be removed from the quarry area on a weekly basis or whenever necessary. No household or industrial waste will be burnt or buried on the site.
- Refueling of vehicles will be done offsite.
- Only emergency repairs will take place within the mining area and must be done over a drip pan.
- Vehicles/equipment shall be maintained to a high standard and shall not display any major leaks.
- Any contaminated spares, oil filters and gaskets will be placed in a suitable receptacle and immediately removed from the property to an approved facility.

- If spills do occur, the affected soil will be removed to an approved waste site. Super absorbing material such as Peatsorb or Spillsorb or alternatively sawdust will be kept onsite and used to contain any potential spills.
- In case of large, critical spills the Departments of Water Affairs and DMR will be informed immediately for assistance and advice and a competent company conversant with bio-remediation will be appointed as soon as possible to address the possible impacts of such spill. All costs would be for the account of the applicant.
- Management will not entertain hydrocarbon spills on site and where necessary, financial penalties would be imposed on workers in cases of negligence.
- No hydrocarbons or hydrocarbon-contaminated material/parts will respectively be drained in the soil or buried on the property.
- All dysfunctional equipment and vehicles will be immediately removed from site.
- The applicant accepts the principle of 'polluter pays'.

AIR QUALITY

The air quality of the immediate surroundings is good due to its rural status. In general, during windy periods the exposed farm land areas will liberate dust into the atmosphere causing a rise in air pollution levels.

The amount of dust generated on a mining area is directly linked to the type of material that is extracted, mechanical processes involved, traffic volumes, wind speed and soil moisture content. At the site the material is fine and has low levels of silt and clay concentrations and it would mainly be the topsoil that will pose a dust nuisance. On the other hand, sand will be generally fine and wind blasting could be expected when the south-easterly and north-westerly winds prevail. In addition, the dryer the soil becomes the more dust it generates therefore topsoil must be replaced, seeded and irrigated as soon as possible.

Although the property involved is zoned agricultural and rural and would under normal circumstances tolerable higher levels of dust; this is not the case for this site. It is extremely important to control dust levels during mining, due to the very close proximity (50m) of the residential house of the neighbor, which will also be in direct line of dominant winds, and the Cosy Corner residence. Therefore, before mining commences in Phase 2; 2-2.5m high hessian cloths must be erected on the north-western boundary line of the neighbor, to mitigate the impact of dust on her property, and must be maintained until the top, flat section has been rehabilitated. Mining must also follow the mine development plan to keep disturbed areas as small as possible and to reduce dust generation when and wherever possible; irrigating the area on a regular basis to damp the soil and enhance establishment of vegetation.

In terms of dominant winds: during the south-easterly winds, which are most frequently experienced in this area, the residence of Cosy Corner will not be in direct line of the wind action, as the wind blows from the south-east into the north-west, and therefore dust will blow away from the Cosy Corner residence, but directly into Mrs Ross residence. However, with north-westerly winds, which are also experienced in this area, the sand blasting might impact on the residence if the wind is more of a northerly wind rather than a north-westerly.



Figure 21: Line of wind in relation to the site and residence

In addition, illegal mining of about 10Ha in extent, operating within closer distance to Cosy Corner residence and which is not applying any mitigation measure to control dust, have never lead to any complaints received from any residence at Cosy Corner or reports of this area being undulated in dust due to mining. The Department of Mineral Resources (DMR) has to date not received any complaint about dust or noise as a nuisance and/or unbearable to any resident. Thus this provides a baseline measure for the proposed mining application. Therefore if this application is approved, the 1.5Ha mine area situated further from the residence will be regulated by the Department of Mineral Resources (DMR) and control will be exercised, compelling the applicant to put into effect all the mitigation measures, thus dust will be effectively controlled.

The applicant and workers must comply with Mine Health and Safety guidelines, thus mitigating these potential health risks. Together with the mine development plan and concurrent rehabilitation as a fundamental part of the development plan; dust generation could be mitigated, but to be more effective the area can be irrigated once or twice per day, during windy days, by means of a water tanker to be filled from the boreholes on the farm. Over irrigation is also not recommended, since it could lead to sheet wash and erosion if the disturbed areas are not properly re-vegetated. It would

therefore be better to only irrigate exposed areas on windy days and not every day; but during the first two weeks after seeding mined areas, irrigation will be important to germinate grass seeds (see heading “Flora”).

Mechanical processes are: mining, screening and loading the material; hence dust generation during normal climatic conditions would be fairly medium. The strong winds may during dry periods (which are quite frequently experienced) liberate vast amounts of dust particles from the quarry into the atmosphere and may cause deposition of large amounts of dust at the neighbor, thus this impact is rated moderate, with mitigation.

No more than 5-8 truckloads would be carted from the property per day resulting in vehicle movement approximately every 45-60 minutes. Since dust generation is also determined by speed in conjunction with axle number it is imperative, that loading trucks reduces haul speed to 30km/h within 100m from Mrs Ross’s residence and enforce that strictly.

Vehicular emissions will be related to excavators, one possible front-end loader, and a number of trucks and it is anticipated that the impact would be low. People would not reside on the property; therefore smoke generated by cooking fires would not be a consideration. No waste would be burned on site. No other form of chemical air pollution is envisaged. No odours will be generated by the mining operation.

At closure, the disturbed area would be rehabilitated and would cause air quality to revert to original levels.

Impact on air quality

| | OPERATIONAL (no mitigation) | WEIGHT | OPERATIONAL (with mitigation) | WEIGHT | CLOSURE | WEIGHT |
|---------------------|--|---------------|--|---------------|-----------------|---------------|
| Extent | Local | 2 | Local | 2 | Site Specific | 1 |
| Duration | Medium Term | 2 | Short Term | 1 | Short Term | 1 |
| Intensity | Very High | 7 | Medium-High | 5 | Low-Medium | 3 |
| Probability | Definite | 4 | Definite | 4 | Probable | 2 |
| Status | Negative | | Negative | | Negative | |
| Confidence | High | | High | | High | |
| Significance | Moderate-High | 44 | Moderate | 32 | Very Low | 10 |

REMEDIAL MEASURES

- Only develop phases 1-2 on the crest before rehabilitation commences. Phase 4 will only be developed once phases 1 & 2 have been stabilized.
- Before mining commences in Phase 2; 2-2.5m high hessian cloths must be erected on the north-western perimeter of phases 1 & 2 when developed to act as dust and sand screens and repositioned when mining progresses. It must be maintained until the top, flat section has been rehabilitated (80% vegetation cover).
- Exposed areas should only be irrigated once or twice a day during periods of strong winds (>30km/hour). Over irrigation should be carefully monitored, not to cause sheet wash on exposed areas.
- Topsoil piles shall be covered with shade cloth.
- The areas must be developed in accordance with the mine development plan and concurrent rehabilitation must be carried out and considered high priority. Disturbed areas shall be kept as small as possible and grassed concurrently with mining.
- If dust becomes problematic, hessian cloths should be erected in north-eastern to north-western directions 10m apart, 2,5m high, will be erected to suppress dust. Once the rehabilitated areas have 80% vegetation cover, the hessian cloths can be removed.
- Vehicles to be maintained properly and fitted with standard exhaust systems and will not be left idling unnecessary.
- No cooking fires will be allowed on the property.
- No chemicals will be stored or disposed off on site.
- Waste will not be burnt on site. Waste will be retained in proper receptacles placed at the site. The waste stream will be limited and be removed from site weekly to an approved dumping site, to prevent odours from occurring.
- The mine will be developed in phases to reduce the extent of exposed areas.
- Topsoil will be reintroduced to mine areas as soon as possible, upgraded, seeded and irrigated immediately after placement.
- Water dust suppression and re-vegetation process will be supplied by means of a water tanker to be filled from the boreholes on the farm.
- Stockpiles will be retained in the mining area, kept as small as possible and be watered down to mitigate source of dust.
- Handling of material during periods of high wind action will be avoided as far as possible if it leads to unacceptable dust generation. Should irrigation be ineffective during such adverse climatic conditions quarry operations shall cease. The management system will allow for monitoring the situation over weekends when no workers are on site.
- Speed of vehicles will be restricted to 30km/h within 100m from Mrs. Ross's residence and 40km/h on other roads.
- Mine Health and Safety guidelines must be implemented by applicant and workers.
- Mrs. Ross must receive some compensation for having mining in such close proximity to her residence.

The impact of noise levels generated by mining activities is determined by the time of day, the consistency thereof, distance to people, whether it is a low or high-pitched noise and whether beneficiation is taking place. Noise levels are more intense in the morning and evening than during the rest of the day and are more irritating if it is high pitched. The more continuous the noise is the higher the impact. In terms of SABS standards noise levels for rural residential areas are 45 dB during the day, 40 dB in the early evening and 35 dB at night. Noise impact is rated against the following: 1) The average person will be able to just detect a noise increase of 2 dB, 2) An increase in noise levels between 2-5 dB will result in no or sporadic complaints from communities whilst an increase between 5-10 dB will result in widespread complaints, 3) An intruding noise is defined by National Noise Regulations as disturbing if it causes the ambient noise levels at the border of the property from which it emanates to increase with 7 dB, and 4) An average person will perceive such an increase in the ambient noise levels as a doubling of noise levels and very strong response will be expected from communities/residents.

The rural nature of the area involved would cause the ambient noise levels on average to be below 30 dB. Taking into account that this is also a farming community, a slight increase in noise levels during the day, at the mine, would be acceptable.

However, in this case, the mine boundary borders the residential area of the neighbor, which is about 45m away from the site, thus for the duration of the life time of the mine, the neighbor will be subjected to noise generated from the mine machinery and workers. It is expected that the noise levels at the mine boundary, and thus the neighbor, should be between 60-50 decibels during the day. In addition, adverse conditions such as low cloud cover or strong winds blowing towards recipients could increase noise levels between 3 & 7 dB, and the fact that the neighbor is in the wind path, further increases the impact. The impact of noise on the direct neighbor, Mrs Ross, is therefore rated moderate-high with mitigation. If mining is approved, this impact will be unavoidable, and would last for the period of the mine's lifespan. The best way to mitigate the noise levels will be to maintain all the machinery and trucks used in the mining process well, which is in the reach of the applicant and to keep to working hours.

In terms of the other residents at Cosy Corner: within 100m from the quarry, noise levels will abate too approximately 50-60dB and within 200m to approximately 50dB. Therefore it is expected that noise levels at the closest Cosy Corner residence, which is about 350-400m away from the site, will preclude any significant impact on residence. Furthermore, no mining will take place over weekends and public holidays, but normal working hours during the week will be applied, this impact on them is rated very low.

Seeing that no camp would be established on the mining area, no noise would be generated at night that could become a nuisance. Working hours would on average be from 7 am to 5 pm on weekdays, which would coincide well with the daily activities of the inhabitants of the area.

Management of this impact during the day could be achieved via an environmental awareness programme. In addition, staff and contractors would be sensitized not to engage in unnecessary hooting, shouting, flapping of tailgates and use of exhaust brakes during operational hours. Maintaining speeds below 40 km/h would assist in curbing noise impact. Exercising proper road etiquette is still vitally important to maintain low noise levels.

Noise Impact

| | OPERATIONAL (no mitigation) | WEIGHT | OPERATIONAL (with mitigation) | WEIGHT | CLOSURE | WEIGHT |
|---------------------|--|---------------|--|---------------|----------------------|---------------|
| Extent | Local | 2 | Local | 2 | None | 0 |
| Duration | Short Term | 1 | Short Term | 1 | Short Term | 1 |
| Intensity | Very High | 7 | High | 6 | Very Low | 1 |
| Probability | Definite | 4 | Definite | 4 | Probable | 2 |
| Status | Negative | | Negative | | Negative | |
| Confidence | High | | High | | High | |
| Significance | Moderate | 40 | Low-Moderate | 36 | Insignificant | 4 |

REMEDIAL MEASURES

- All vehicles will be fitted with standard exhaust systems and be regularly serviced.
- Unnecessary hooting, shouting, flapping of tailgates and use of exhaust brakes will be discouraged and be penalized where necessary.
- Unnecessary idling of vehicles will be discouraged.
- Traveling speed on the internal haul road will be reduced to 40km/h
- Normal working hours will apply for weekdays (7am-5pm) and Saturdays (8am-1pm) if necessary (will liaise with property owners) – No work on public holidays or Sundays.
- Workforce and contractors will be properly managed in terms of noise generation and be informed on acceptable behavior.
- Protective ear devices will be provided to all operators of machinery/vehicles generating noise above 50dB at source.
- All Mine Health and Safety guidelines must be complied with.

BUILDING RUBBLE

Sand will be sold by volume and sales will be managed from an offsite administrative complex. A small maintenance area for machinery/vehicles is available at the farm residence. Therefore no construction activities will take place at the site and since no crushing plant will be erected; no cement residue, brick residue, corrugated plate off-cuts, ceramic waste or PVC residue would be generated. At closure the mobile screen will be removed.

INDUSTRIAL WASTE

Very little industrial waste will be generated and will be restricted to the odd tire casing, which will be removed from the property on a daily basis. No impacts on soils, water vegetation, air quality and humans are anticipated.

DOMESTIC WASTE

The waste stream will consist mainly of domestic waste (food, bottles, plastic bags, paper, clothing, rags etc) and will be small and deposited in the containers provided for this purpose. Refuse bins will be clearly marked and placed at the entrance (top, flat section of the mine) to the property to encourage workers to use them. Poor control over domestic waste handling could lead to littering the site and abutting properties and must be avoided since it could lead to livestock mortality. Due to the limited number of people anticipated on site, the limited waste stream will have negligible impacts on soils, water vegetation, air quality and humans.

MINE RESIDUE

The geology of the area restricts the type of residue to some root mass, which will be stockpiled and worked into the topsoil as organic matter. Since no chemical processes, mineral processing or washing plant is required on site no chemical/mineral waste or effluent is generated.

The cumulative impact on soils, water quality, stream flow, vegetation, and aesthetics is rated of low significance.

SEWAGE SYSTEM

The sewage system will consist of a chemical toilet and due to the limited number of people on site, the effluent stream will be limited to approximately 0,1m³ per week and no impacts on soils, groundwater, surface water, air and humans are anticipated.

HYDROCARBONS

No hydrocarbon storage, transfers or handling will take place onsite. Servicing of equipment and vehicles would be done at the maintenance workshop in East London, but a workshop at the farm could facilitate minor services and general repairs. Therefore no hydrocarbon waste such as used oil, lubricants and hydrocarbon-contaminated filters will be generated. Any such material generated during emergency repairs will be removed from site immediately.

No wash bay or oil trap will be constructed as vehicles will be washed off site and all hydrocarbon spills will be contained within large drip pans.

SALVAGE YARD / SCRAP METAL

Since servicing of equipment is not anticipated onsite and the fact that there is no beneficiation plant the accumulation of scrap metal does not need consideration

Impact of waste on the environment

| | OPERATIONAL (no mitigation) | WEIGHT | OPERATIONAL (with mitigation) | WEIGHT | CLOSURE | WEIGHT |
|---------------------|--------------------------------|-----------|----------------------------------|----------|----------------------|----------|
| Extent | Local | 2 | Site Specific | 1 | Site Specific | 1 |
| Duration | Short Term | 1 | Short Term | 1 | Short Term | 1 |
| Intensity | Low Medium | 3 | Low | 2 | None | 0 |
| Probability | Likely | 3 | Probable | 2 | Unlikely | 1 |
| Status | Negative | | Negative | | Negative | |
| Confidence | High | | High | | High | |
| Significance | Low | 18 | Very Low | 8 | Insignificant | 2 |

REMEDIAL MEASURES

- The odd tyre casings and dysfunctional equipment that could be generated, will be disposed of immediately at the nearest registered waste facility.
- All machinery and waste, if any will be removed at closure.

- Any waste produced will be removed from the mine area on a continuous basis to the nearest waste facility with specific emphasis on household waste, plastics, and unusable scrap metal and tire casings, if any.
- At closure, all waste will be removed from site.
- Vehicles may not leak any fuel, oil or lubricants and will be maintained to an acceptable standard offsite.
- Any fuel spills will be cleaned up immediately and the soil from spill areas to be removed to the waste disposal site.
- A chemical toilet will be placed at the quarry and it will be regularly serviced and emptied at an approved waste site. A Health Inspector should inspect the system and surrounds annually.
- Strict controls will be enforced to ensure that the surrounds are not used as ablutions and this aspect would be included in the environmental awareness programme.
- Domestic waste generated ancillary to the mining process will be deposited in containers with scavenger proof lids placed at quarry. It will be weekly removed from site to the nearest waste site and not dumped in the veld. Containers will be clearly marked to ensure that they are used for the right purpose. Management will provide clear management guidelines and this aspect will be included in the environmental awareness programme, if needed.
- Waste will not be burnt or buried on site.
- Staff will be equipped to distinguish between domestic waste and industrial waste.
- No day to day repairs or servicing of vehicles or equipment will take place on site.
- All hydrocarbon-contaminated material, including soil to be disposed at a hazardous waste facility and the affected area bio-remedied by a specialist in case of any large spills.
- No washing of vehicles will take place on the property.
- Facilities will be maintained and kept neat on a continuous basis.
- Any unusable scrap metal or dysfunctional machinery on the property will be collected and removed on a monthly basis and the allocated storage space will be fenced off and be earmarked for this purpose.
- At closure all remaining stockpiles will be flattened and reintroduced to disturbed quarry areas and all waste will be removed off site and disposed off in an appropriate manner.
- A general clean up of the property will be done on a weekly basis and before every year end closure and all personnel will be involved to establish a sense of pride in achieving a clean environment.

VISUAL IMPACT AND AESTHETIC ACCEPTABILITY

Originally, the landscape would have been described as very attractive and of high aesthetic quality. However, residential development (about 9.5Ha) clearing prime coastal forest, the clearing of vegetation for the establishment of grass land for farming activities, and illegal uncontrolled mining clearing 10Ha of vegetation has led to the degradation of the once high aesthetic standard. Thus the current landscape can be described as moderately attractive with fair aesthetic quality.

As the case may be, the onsite assessment of immediate landscapes revealed that the proposed mine is bordered by completely transformed land, which includes the residential farm house, to the north-west of the site and illegal mining to the north and north-east of the site. The rest of the area is surrounded by farmland, with the closest residents at Cosy Corner, south of the site, who is about 350m away from the proposed mining site.

The site will therefore be visible to some of the residents at Cosy Corner, due to the topography of the site, as well as the neighbor, due to the location of the site. The site will however not be visible to any public road user.

Visual impact will be unavoidable, but can be successfully mitigated. Mining will change the texture (from vegetated to smooth) and color (from green to whitish-grey), which will increase visibility considerably. However, clearing of vegetation for farming purposes is a common phenomenon in this area and does to some extent constitute a lesser focal point in the landscape. Also, only a small portion (1.5Ha) will be disturbed in phases, compared to the farming areas which can consist of areas as large as 5Ha at a time and the illegal mining that has already disturbed about 10Ha.

Thus mining will result in the clearing of secondary grassland and the visuals of the area will be marginally affected. With a proper re-vegetation approach the impact will be short term and there will be no long term impact. The phase development approach will ensure concurrent rehabilitation and the site will be restored back to a grazing unit, once mining is completed.

However, the neighbor, Mrs Ross, will be impacted the most. This impact will be mitigated by the establishment of shade cloth screens on the north-western perimeter of individual mining areas. The screens would however cut off pleasant views to the south-east, but will be temporary. Thus, it will be essential to establish the vegetation and restore the site as soon as possible, to prevent it to revert to poor status.

Production areas will be profiled and re-vegetated concurrently with extraction activities to mitigate the impact. Since the land displays a hilly topography, the newly established depression, following the natural incline of the topography, will be readily absorbed in the landscape. This impact is temporary.

Stockpiles within the quarry would be low and not readily protrude above the original level of the land and will only equal one day's demand. It is not expected that it would cause the quarry operation to become more visible. Dust generation at the site will be experienced, resulting in visual dust plumes to hang in the air above the site, especially during periods of strong winds, but as previously discussed, this impact is unavoidable and would be mitigated in the best possible way.

Due to the low intensity operation, visual intrusion would be minimal and temporary within the surrounding landscape. In conclusion, the all-over visual impact can be rated low-moderate over the short term and insignificant over the long term.



Figure 22: Northern-eastern view of the site (a) picture taken within the proposed mining site (b) picture was taken at the proposed mine boundary looking onto the mined area of the neighbor.



Figure 23: Eastern view of the site: tomato land that borders the proposed mining site.

Figure 24: South-eastern view: Note the residential area.



Figure 25: South-Western view of the site: Note

Figure 26: North-Western view: Neighbors

the applicants house in the back.

house.

Visual Impact

| | OPERATIONAL (no mitigation) | WEIGHT | OPERATIONAL (with mitigation) | WEIGHT | CLOSURE | WEIGHT |
|---------------------|--|---------------|--|---------------|----------------------|---------------|
| Extent | Local | 2 | Local | 2 | Site Specific | 1 |
| Duration | Medium Term | 2 | Short Term | 1 | Short Term | 1 |
| Intensity | Medium-High | 5 | Medium | 4 | Very Low | 1 |
| Probability | Definite | 4 | Definite | 4 | Unlikely | 1 |
| Status | Negative | | Negative | | Negative | |
| Confidence | High | | High | | High | |
| Significance | Moderate | 36 | Low-moderate | 28 | Insignificant | 3 |

REMEDIAL MEASURES

- Shade cloth screens on the north-western perimeter of individual mining areas must be established, prior to mining and must be removed once the area is rehabilitated.
- No vegetation clearing will take place outside the proposed mine area during the mining operation.
- Reduce visual impact through proper re-vegetation.
- The proposed mine areas will be kept clean and free of litter on a continuous basis. A weekly clean up of the entire site will be done.
- No dumping of waste will be allowed on the property.
- Disturbed areas will be progressively developed and rehabilitated as indicated under 'mine development.
- Cuts will follow curvilinear lines, which will blend in with those of the surrounding landscape, rather than straight geometric lines.
- The sides of the quarries and the phase 8 pillar will rounded off through a cut and fill action to create a minimum slope of 1:3.
- Alien vegetation will be removed on a continuous basis to ensure that established natural vegetation is not again out competed.
- At closure all stockpiles will be flattened.
- Visuals will be drastically improved at closure of the mining concern.
- At closure, all disturbed areas would have been rehabilitated as per the re-vegetation plan.

The gravel access road to Mrs. Ross's property will be used as a haul road since the access road to Cosy Corner dispose of a sub-standard tar surface and will not be able to accommodate heavy traffic. In addition, this Cosy Corner road is narrow and crosses over the Ross's Creek stream; a bridge that will most likely not be able to handle heavy vehicle. The community also uses this road for recreational purposes like jogging/walking and cycling, thus the use of this road for hauling material from the site will not be recommended.

Access to the site from the Lillyvale Road will be via the gravel servitude road across Mr. Lustgarten's farm, onto the Keizers Beach road and connecting with the R72 (national road).

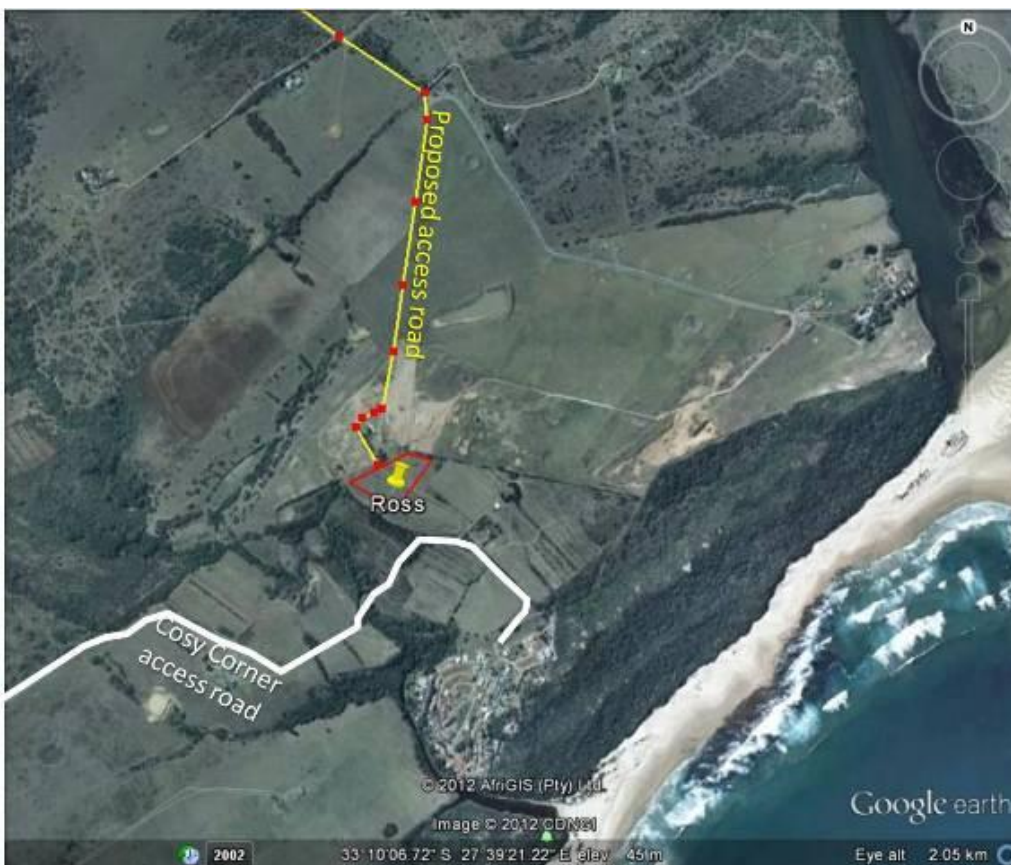


Figure 27: Proposed access road from the mine area is indicated in yellow, the Cosy Corner access road is indicated in white.

The gravel road however is not constructed for carrying heavy vehicles and will require grading and upgrading of the wearing course from time to time. The road can be protected against erosion by means of cross and mitre drains; spill out of these cross drains must be directed into areas that are

well established with vegetation, which will not lead to any erosion. The impact on the integrity of the road is deemed of low-moderate significance when the necessary maintenance is provided.

It must also be noted that Mr Lustgarten has objected to other heavy vehicles making use of this road, since he claims that he will only allow his own vehicles access through his property, because he maintains the road and will refuse to maintain it for other heavy vehicles. It is clear that Mr Lustgarten allows illegal mining on his land and allows the vehicles to use the servitude road on his property to haul sand from his property. It would appear then that the objection is not based on the concern for the maintenance of the road, but rather based on the concern for market competition from a legal mining concern and an attempt to prevent this application from being approved. Thus the DMR should consider this motivation for this objection carefully. Conditions of Section 5 of the MPRDA, guaranteeing access to the mining site should be taken cognizance of.

In terms of the integrity of the proposed roads to be used: The Lillyvale Road is of average to poor standard and is also used by two other illegal mining concerns and it will experience an additional impact on structural integrity and the applicant will have to contribute to the maintenance of this road. The impact on the road is deemed to be of moderate significance.

The Kaizer's Beach Road is of average standard, but experience edge breaking caused by the heavy vehicle traffic from farms and illegal mines and will experience an additional impact on structural integrity. Also, only the first 400m stretch of the Kaizer's Beach road will be used before the Lillyvale turn off, thus only a very small section of this road will be impacted on. The impact is therefore rated of low-moderate significance. If the DMR however stops the illegal mining, then less heavy vehicles will use these roads and the impact will be lessened.

The R72 is in good condition but considering that this road is purposed to maintain heavy traffic flows, and impact of low significance is anticipated. The limited increase in traffic volume added to the R72 is deemed insignificant by the Lillyvale and Kaizer Beach roads will experience a moderate increase in heavy vehicle traffic.

Line of sight at all accessed is reasonable and residents are used to mining vehicles using the roads concerned. The upgrading and maintenance of all three these roads rest solely with the District Road Engineer (DRE) and the necessary consultation must be established with the Department of Roads and Transport with regards to increased maintenance of roads. If required, a contribution must be made to maintenance of roads concerned.

To mitigate the impact on the roads low speeds must be kept and no overloading will be tolerated. The safety risks for motorist could increase with the increase in heavy vehicles on the road. Cyclists and pedestrians will experience a similar risk and truck drivers will be sensitized on the matter and provided with the necessary transport training. It is understood that heavy vehicles will slow down vehicles on these roads but since they are relatively low traffic counts, the impact would be limited.

Furthermore, the necessary heavy vehicle signage must be erected on both sides of the Kaizer’s Beach road and the R72, as per the specifications of the District Roads Engineer. During periods of high hauling rates, a flagman should secure the accesses.

Drivers will be sensitized on safety procedures and only skilled drivers will be appointed. Road safety for motorists is of importance and truck drivers will be informed accordingly and be sensitized towards displaying proper road etiquette.

Material will only be carted from the property as from 08:00 to 17:00 during the week.



Figure 28: View of the R72 road

Traffic impact

Impact on Traffic on the roads

| | OPERATIONAL (no mitigation) | WEIGHT | OPERATIONAL (with mitigation) | WEIGHT | CLOSURE | WEIGHT |
|---------------------|--|---------------|--|---------------|----------------------|---------------|
| Extent | Sub Regional | 3 | Sub Regional | 3 | Site Specific | 1 |
| Duration | Short Term | 1 | Short Term | 1 | Short Term | 1 |
| Intensity | High | 6 | Medium-High | 5 | Low | 2 |
| Probability | Definite | 4 | Likely | 3 | Unlikely | 1 |
| Status | Negative | | Negative | | Negative | |
| Confidence | High | | High | | High | |
| Significance | Moderate | 40 | Low-Moderate | 27 | Insignificant | 4 |

REMEDIAL MEASURES

- All vehicles will be properly maintained in accordance with Eastern Cape Roads Act 3 of 2003.

- All drivers will display the necessary road etiquette and dispose over applicable drivers licenses and this aspect will be included in the environmental awareness programme.
- No unnecessary hooting would be permitted.
- Vehicles entering the public gravel road or any other road will come to a complete stop before entering the road and any transgressions in this regard will be heavily penalized. All contractors will sign a letter of agreement to this effect.
- All vehicles visiting the quarry shall be road worthy and will be included in the agreement with contractors.
- Overloading will not be permitted. Speeding will be prohibited and drivers will be penalized should it be proved that this requirement is contravened. Hauling speed will be reduced to below 30km/h within a 100m from Mrs Ross's residence.
- Hauling of material will only mostly commence at 08:00 and ceases at 17:00. No vehicles may park along the road outside the mine area before or after the said times.
- The appropriate signage (W107 & W108 –1,2m size) will be erected on both sides of the Kaizer's Beach road and the R72 and will be maintained in collaboration with the District Roads Engineer.
- The District Roads Engineer will be consulted on the maintenance of the road to be used.
- If poor visibility or slow access of vehicles onto the Kaizer's Beach road and the R72 could result in any accidents, a flagman will be used at the access.
- Internal haul roads will be maintained to an acceptable standard to prevent erosion and maintain safety standards, as discussed under the heading 'Soil'.

SOCIO -ECONOMIC IMPACT

It is very important for any mining application to consider the social impacts, whether it is beneficial or harmful to the surrounding community. Sand mining is beneficial to some community members requiring sand for residential construction, thus the availability of such material is very convenient and more affordable, and also it can provide job opportunities and must be seen as a positive contributor to upliftment of inhabitants of the area. Establishing the concern will also result in certain downstream employment and other spin-offs in the constructing industry, however due to the small scale of the quarry, it will only contribute to a very low role in the development of the surrounding infrastructure.

On the other hand, developing the quarry could also be harmful to other community members due to all the reasons already listed and discussed in this report. However, one has to balance economical growth with social impacts.

Concerns were raised that the establishment of the mine will cause devaluation of properties. It must be noted that devaluating might be experience within the two years that the mine is valid, since

people don't necessarily want to buy a house in close proximity to a mine, but when mining is done correctly and governed by the DMR, it will not affect your property value, since this mining venture will be temporary and be rehabilitated. Once the mining has exhausted the minerals in the allocated area or the mining permit period has expired, the mine must be closed. The DMR will only grant closure if the site has been rehabilitated to at least a 70% status and if all the interested and affected parties are satisfied with the rehabilitation. If Mr Ross fails to reach these closure objectives, the DMR must appoint someone to rehabilitate the site and it will be to the cost of the applicant, Mr Ross.

It should be noted that since 2004 illegal mining has occurred in the abutting properties to the proposed mining site, to an extent of about 10Ha in size and to date this illegal site is not regulated and rehabilitation is not enforced. There has been no record of property devaluating due to this illegal mining, and it is highly unlikely that a smaller mine, governed by the DMR will devalue any property. Mining is not considered a change in land use and the site will be restored to a grazing unit once mining ceases.



Figure 29: Aerial Photo indicating current illegal mining in close facility to Cosy Corner. Illegal mining has been in operation since 2004.

The problem with illegal mining is the creation of social impacts and the lack of governance and control over such a mine. It is clear that illegal mining poses a great threat to environmental degradation and social impact, especially safety issues. By establishing a legal concern, the community can purchase material from a legal source and thus put a stop to illegal mining. People supporting illegal mining also assist in illegal activities; therefore it is very important to establish a legal mining concern in this area, since it is clear that there is a market for sand.

Another concern that was raised is the issue concerning the increase in crime. It must be noted that there will always be a possible increase in crime associated with the increase of any development. As is the case with any additional development to this area: which includes residential development/the construction/alteration of houses, which allows for an increase of construction workers being present in the residential area. Currently, this is a common occurrence at the Cosy Corner residential area, since not all the phases have been developed yet and some houses are still under construction. Another influx of labor into this area is during harvest time, when casual workers are employed on a contract basis. All of these can lead to the influx of unwanted people seeking opportunity to commit crime.

The propose mining will result in an addition of mostly 2-3 workers on site at any given time. These will include the front-end loader operator, the truck driver and a member of staff performing the rehabilitation work at the site, which in this case will be an existing farm worker for Mr. Ross. Furthermore, the workforce will not reside on the mine, but will commute to work every day. Thus the possibility that this mining venture will result in the increase of crime in this area will be unlikely. Nevertheless, in-house rules will be established and all staff members must adhere to the rules.

Since operational hours will be restricted to daytime, light pollution at night is not a consideration. Based on the above, the overall social-economic impact is rated positive.

Impact on the Socio-Economic Impact

| | OPERATIONAL (no mitigation) | WEIGHT | OPERATIONAL (with mitigation) | WEIGHT | CLOSURE | WEIGHT |
|--------------------|---|---------------|--|---------------|---|---------------|
| Extent | Local | 2 | Local | 2 | Local | 2 |
| Duration | Short Term | 1 | Medium Term | 2 | Medium Term | 2 |
| Intensity | Low | 2 | Low | 2 | Low | 2 |
| Probability | Definite | 4 | Definite | 4 | Definite | 4 |
| Status | Positive (economic attributes) | | Positive (economic attributes) | | Negative (Loss of jobs and income and less spin-offs) | |

| | | | | | | |
|---------------------|--------------------------------------|-----------|--------------------------------------|-----------|------|-----------|
| | outweigh the negative social impacts | | outweigh the negative social impacts | | | |
| Confidence | High | | High | | High | |
| Significance | Low | 20 | Low Moderate | 24 | Low | 20 |

REMEDIAL MEASURES

- Those described under previous headings plus establishing regular meetings with nearby neighbours.
- No wandering of any quarry workers on any area outside the quarry area, especially onto the neighboring property.
- No stock theft or poaching will be tolerated by the workforce and any person found guilty of these transgressions will be removed from the property, dismissed and handed over to the police for sentencing. Landowners will be fully compensated for stock loss.
- No wood will be gathered from outside the mine area and no plant or crop will be removed by the workforce. Any transgressions in this regard will result in disciplinary action being taken and the guilty party being removed from the property.

SITES AND STRUCTURES OF ARCHAEOLOGICAL AND CULTURAL INTEREST

These sites represent the heritage of communities and are therefore protected in terms of current legislation. In addition all material/buildings older than 60 years are protected. An Archaeology Report will be conducted by Dr. Binneman from the Albany Museum in Grahamstown and SAHRA office in East London and the full report will be submitted to the DMR once completed.

PUBLIC PARTICIPATION

Current legislation (section 10 of the MPRDA) requires that interested and affected parties be consulted and as part of the public participation process the following steps were taken:

- On 21 November 2011 a notice for a public meeting was given to the Cosy Corner office to distribute the information to all the residence. The notice also contained some background information regarding this mining venture and a map indicating the locality of the site and requested that any comments/objections to this project must reach Stellenryck Environmental

Solutions (SES) on or before 15 December 2011. The lady from the Cosy Corner office, Elaina, confirmed that she gave the document to one of the directors of the Cosy Corner Homeowners Association, Mr Kevin Quayle for him to distribute to all the residence, as SES did not have that information. She also placed the notice on the noticed board at the community hall in Cosy Corner, making the information available for all the residents. To date this notice has not been removed from the board.

- On 26 November 2011 the public meeting was held and 16 community members attended the meeting (see attendance register), excluding the applicant and his son.
- During the meeting background information was given and the development of the site was discussed. The floor was opened for questions and the minutes of the meeting was captured. Many concerns were raised but each concern was addressed. SES also advised that a follow-up letter with a summary of the environmental assessment will be forwarded to the director of the CC Homeowners Association for his distribution to all the residence.
- On 7 March 2012 abutting landowners and Cosy Corner residence were consulted with a letter providing information regarding the development, a response form and background information on the proposed development, and requesting a final chance to provide comments/objections before 22 March 2012 on the mining application *per se* and comments on the environmental matters on 28 March 2012.
- On 12 March 2012 a letter was sent to the Department of Roads and Transport, Department of Land Affairs and Buffalo City Municipality. Buffalo City Municipality replied indicating that the letter was forwarded to other municipal officials to consider the application.
- On 14 March 2012 a more detailed letter with back ground information and summarized environmental impact assessment was forwarded to the Buffalo City Municipality, Mrs. Ross, Mr. Lustgarten and the Cosy Corner Office for distribution to the directors and all the residence. These letters were initially emailed, but also sent via registered post on the same day.
- SES received response from 25 members objecting to the proposed project. It was noted that from the 25 members, 3 of the members were at the public meeting, while the rest failed to attend. Also, that some objections came from two separate letters (each from husband and wife) from the same households. Objections raised consisted of concerns regarding the impact mining will have on:
 - a) The wildlife and flora
 - b) Land use and capability
 - c) Surface run-off and storm water control
 - d) Water usage
 - e) Dust control and air pollution
 - f) Noise impacts
 - g) Social impacts with regards to heavy vehicles using the Cosy Corner road, and the impact on this road. Also concern was raised regarding the possible increase in crime due to the quarry development
 - h) Devaluing of property because of the mine; and
 - i) Visual impacts

SES responded to each objection and letters were forwarded to the members on 29 March 2012. It was noted that most of the issues raised is from a lack of understanding the development of the mine and the locality and extent of the mine. All of the concerns and objections listed were carefully considered and mitigation measures have been allocated to each impact and prescribed in the EMP.

- The DMR will consult with Departments of Water Affairs, Agriculture and Environmental Affairs.
- At closure, abutting landowners and affected departments will be consulted on the end result of rehabilitation.

CONCLUSION

- A. The proposed quarry can be developed in a sustainable manner provided that the following requirements are met:
1. A alternated phased development approach must be followed and should the applicant not be able to rehabilitate Phase 1 effectively operations at the quarry must be stopped.
 2. An aggressive rehabilitation plan be followed.
 3. Storm water control measures must be maintained at all times.
 4. Alien vegetation must be prevented from establishing in the mine area.
 5. The Department of Mineral Resources must provide the necessary guidance and monitoring and where applicable enforce environmental legislation.
- B. The proposed quarry can meaningfully contribute to the road construction projects in this part of the Eastern Cape. Since the quarry will be financially sustainable, it would provide ample finances for the rehabilitation process.

FINANCIAL PROVISION

The amount calculated is required for the rehabilitation of environmental damage caused by the operation and makes provision for premature closure and worst-case scenario. This amount reflects the cost should the Department has to rehabilitate the area disturbed in case of liquidation or abscondence of the holder. In this regard it should be noted that only one quarry will be developed at a time and this serves as an undertaking to this effect.

ANALYSIS OF REHABILITATION COSTS: PRIVATE RATES

GENERAL

Tendering process & advertisement = **R3 000**

Transport of equipment = **R3 000**

Supervision fees and reporting = **R5 000**

Aftercare – erosion, alien eradication, seeding/planting and monitoring = **R10 000**

Closure documents = **R5 000**

Sub-Total = R26 000

MINE AREA (FOR TWO PHASE)

Cut and fill of production faces (1:3) 3000m³ @ R7/ m³ = **R21 000**

Seeding and fertilising of 0,6ha –@ R3000 per ha = **R1 800**

Removal of waste, scrap metal and redundant equipment etc = **R500**

Erosion control measures = **R5 000**

Sub-Total = R28 300

Total = R54 300

A financial guarantee to the value of R45 000 will be made available to the DMR before approval, which is sufficient for the rehabilitation of one phase. It is proposed that the applicant submit one additional payment of R10 000 before commencing with phases 3, 5, 6 &7 (the bottom area). Should the applicant rehabilitate each phase concurrently with mining it is proposed that no additional payment be made

UNDERTAKING: IMPACT ASSESSMENT

I, Mr. W. R. Ross, declare that the above information is in my opinion true, complete and correct. I undertake to implement the measures at both quarries as described in all sections of this document. I understand that this undertaking is legally binding and that failure to give effect hereto will render me liable for prosecution in terms of Section 98 (b) and 99 (1)(g) of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002). I am also aware that the Regional Manager may, at any time but after consultation with me, make such changes to this plan, as he/she may deem necessary.

Signed on this day _____ of _____ 20_____

Signature of applicant

MONITORING AND PERFORMANCE ASSESSMENT

INSPECTIONS AND MONITORING

- Regular monitoring of all the environmental management parameters and implementation of measures will take place and the holder of the mining permit shall carry out certain components thereof to ensure that the provisions of this programme are adhered to.
- Ongoing and regular reporting on the progress of implementation of this programme will be done.
- Various compliance areas will be identified with regard to the various impacts that the operations will have on the environment.
- Inspections and monitoring shall be carried out on a regular basis with specific emphasis on phase development, profiling of disturbed areas, re-vegetation progress, and maintenance of storm water control measures, die-off of established vegetation and prevention of spreading of alien vegetation.

COMPLIANCE REPORTING / SUBMISSION OF INFORMATION

- Layout plans could be updated annually or should mining operations change drastically and updated copies will be submitted to the DMR

- Any environmental emergency/accident will be reported immediately to DMR and where applicable to DWAF/DEA.
- Should the assessment of environmental impacts in future be proved incorrect or should have impacts been unknown when the programme was compiled, then additional assessments shall be carried out and added as an amendment and where applicable a second opinion will be sought.
- All environmental hazards, unforeseen impacts identified, pollution incidents or environmental failures will be reported to the DMR and other relevant Departments immediately.
- A six-monthly performance assessment will be compiled and submitted to the DMR.
- Once extraction is completed a closure program will be compiled to ensure that rehabilitation will be completed as per the EMP and applicable environmental legislation.
- A final performance assessment report will be submitted at closure to ensure that all potential impacts are covered, that procedures followed were in line with the conditions of the management plan and that rehabilitation was completed in accordance to the management plan. Should any major shortcomings be detected then an amendment to the EMP/closure plan will be drafted and submitted for approval by the DMR.

The following site specific monitoring will be executed:

- An environmental monitoring checklist should be developed immediately after approval to facilitate a formal assessment process. It should be in line with environmental matters addressed in the EMP, with specific attention to: phase development, storm water control measures, dust control, re-vegetation and noise control.
- The entire quarry will be monitored on a weekly basis until closure is granted.
- The mining/rehabilitation activities will be regularly visited by the holder/manager to ensure that mining is taking place within approved boundaries, that the necessary dust control measures are implemented and well maintained, noise levels controlled, production faces are profiled and stabilized, vegetated and fertilised and that no erosion or dumping of waste on unauthorised areas are taking place on site.
- That vegetation cover and species diversity is adequate.
- The minimum vegetation is removed ahead of the mining face.
- Re-vegetation process is successful and that alien vegetation is removed.
- The area will be regularly visited by the holder/manager to ensure that the handling of hydrocarbons is according to approved guidelines and that the necessary precautionary measures for spills are adequate.
- General waste is handled correctly and effectively removed from the property.
- That the mine is clean and tidy.
- Should any remedial measure fail, it will be adapted to suit circumstances or alternatives would be found in conjunction with the officials in affected Departments or with private experts.
- An environmental awareness programme can be introduced to make employees and contractors aware of EMP requirements.

- Should serious environmental misconduct by workers occur, the specific activity would be stopped until the problem has been remedied and financial penalties will be imposed.

REHABILITATION SCHEDULE

QUARRY

1. Profiling of Phase 1– continuous with mining with and completed before commencement of Phase 2, and so forth.
2. Pulverising/mulching of root mass reworked back into topsoil – weekly
3. Re-vegetation of the final phase must be completed within 6 months after completion of mining.
4. Submit a closure plan & risk assessment three months before mining operations are to cease.
5. Aftercare/maintenance – Two years after rehabilitation was successfully completed.

GENERAL

1. Quarterly eradication of alien vegetation until closure certificate is issued
2. Light application of fertilizers in March for duration of mining, rehabilitation and aftercare phases.

CLOSURE OBJECTIVES

Closure objectives will be based on the following:

1. Identify the key objectives for mine closure to guide the project design, development and management of environmental objectives;
 2. Provide broad future land use objective(s) for the site; and
 3. Provide proposed closure cost.
- The mine area will be rehabilitated back to a sustainable environment for farming purposes.
 - Production faces of the quarry will be profiled to 1:3 slopes and the edge rounded off to create a flowing landscape.
 - Phase 8 will be retained and sloped to a 1:3 gradient, as well as the boundary pillar between the mine area and the neighbouring mine area.

- The top flat section of the floor will be a 1% slope towards the north-east and mining will be restricted to 1.5-2m, following the natural incline of the topography. Once the boundary pillar is removed, the site will drain freely into the north-east area that is well established.
- Contours created at the bottom, incline section between phases 3&6 and 5&7 must be well maintained and kept.
- The rehabilitated area will be kept clear of alien and invasive plant species.
- The area would be litter free.
- There will be no remaining stockpiles, equipment, waste, scrap metal/redundant equipment left in the mining environment.
- Hydrocarbons, and contaminated soil, if any, will be safely removed from site.
- Safe drainage of the mine must be achieved without causing erosion of the slopes and the quarry floor.
- Some animals will be able to return safely to the site
- The proposed land-use will be achieved within 1 year after rehabilitation has been completed.
- Nearby residents will not be subjected to any post closure social or environmental impacts.

AFTERCARE

It is anticipated that the following aftercare will be provided over one year:

- Vegetation cover – reseeds bare areas with Bermuda grass – September to March
- Stability of production faces – Reshape affected areas, compact - May to August - Seeding done as from September to March
- Eradication of alien vegetation – Quarterly

POST CLOSURE MAINTENANCE

In order to provide the necessary funds for this task the following funds need to be secured:

Eradication of invasive vegetation = R4000 per annum x 2 year = **R8 000**

Infill of any erosion gullies – **R5 000**

Seeding, fertilizer van infill planting – **R5000**

Total = R18 000

POST CLOSURE AESTHETIC ACCEPTABILITY

The quarry area will resemble a depression into the hill and incline, following the natural slope of the topography, but just lowering the floor between 2-1.5m. The area will display homogeneous grassland, which will serve as a grazing unit and the anticipated change in landform will after re-vegetation not be clearly noticeable.

If rehabilitation is not afforded adequate time and finances the above assessment will change dramatically and the area will revert to a heavily invested area reflecting poor quality landscape and extensive erosion.

LEGAL PROVISIONS

Compliance with the provisions of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) and its Regulations does not necessarily guarantee that holder is in compliance with other Regulations and legislation. Other legislation that will be observed includes, but are not limited to:

- * National Monuments Act, 1969 (Act 28 of 1969).
- * National Parks Act, 1976 (Act 57 of 1976)
- * Environmental Conservation Act, 1989 (Act 73 of 1989)
- * National Environmental Management Act, 1998 (Act No. 107 of 1998)
- * Atmospheric Pollution Prevention Act, 1965 (Act 45 of 1965)
- * The National Water Act, 1998 (Act 36 of 1998)
- * Mine Safety and Health Act, 1996 (Act 29 of 1996)
- * The Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983).

I, Mr. W. R. Ross, take cognisance of the following penalties should I transgress any section of the MPRDA or any other Act governing any other activity on the two quarry sites or any condition of the EMP and will abide thereby.

| Section of Act | Penalties for failure to comply with the provisions of the MPRDA 28 of 2004 | Penalty in terms of Section 99 |
|----------------|--|---|
| 5(4) | No person may prospect, mine, or undertake reconnaissance operations or any other activity without an approved EMP, right, permit or permission or without notifying land owner | R 100 000 or two years imprisonment or both |
| 19 | Holder of a Prospecting right must: lodge right with Mining Titles Office within 30 days; commence with prospecting within 120 days, comply with terms and conditions of prospecting right, continuously and actively conduct prospecting operations; comply with requirements of approved EMP, pay prospecting fees and royalties | R 100 000 or two years imprisonment or both |
| 20(2) | Holder of prospecting right must obtain Minister's permission to remove any mineral or bulk samples | R 100 000 or two years imprisonment or both |

| Section of Act | Legislated Activity/ Instruction/ Responsibility or failure to comply | Penalty in terms of Section 99 |
|----------------|--|---|
| 26(3) | A person who intends to beneficiate any mineral mined in SA outside the borders of SA may only do so after notifying the Minister in writing and after consultation with the Minister. | R 500 000 for each day of contravention |
| 28 | Holder of a mining right or permit must keep records of operations and financial records AND must submit to the DG: monthly returns, annual financial report and a report detailing compliance with social & labour plan and charter | R 100 000 or two years imprisonment or both |
| 29 | Minister may direct owner of land or holder/applicant of permit/right to submit data or information | R 10 000 |
| 38(1)(c) | Holder of permission/permit/right MUST manage environmental impacts according to EMP and as ongoing part of the operations | R 500 000 or ten years imprisonment or both. |
| 42(1) | Residue stockpiles must be managed in prescribed manner on a site demarcated in the EMP | A fine or imprisonment of up to six months or both |
| 42(2) | No person may temporarily or permanently deposit residue on any other site than that demarcated and indicated in the EMP | A fine or imprisonment of up to six months or both |
| 44 | When any permit/right/permission lapses, the holder may not remove or demolish buildings, which may not be demolished in terms of any other law, which has been identified by the Minister or which is to be retained by agreement with the landowner. | Penalty that may be imposed by Magistrate's Court for similar offence |
| 92 | Authorised persons may enter mining sites and require holder of permit to produce documents/ reports/ or any material deemed necessary for inspection | Penalty as may be imposed for perjury |
| 94 | No person may obstruct or hinder an authorised person in the performance of their duties or powers under the Act. | Penalty as may be imposed for perjury |
| 95 | Holder of a permit/right may not subject employees to occupational detriment on account of employee disclosing evidence or information to authorised person (official) | Penalty as may be imposed for perjury |
| All sections | Inaccurate, incorrect or misleading information | A fine or imprisonment of up to six months or both |
| All sections | Failure to comply with any directive, notice, suspension, order, instruction, or condition issued | A fine or imprisonment of up to six months or both |

ACKNOWLEDGEMENTS

Department of Water Affairs – Environmental Data

SM Pierce & AD Mader - STEP Handbook

Department of Environmental Affairs and Tourism: National Biodiversity Strategy and Action Plan

Mr John Victor

UNDERTAKING

I, Mr. W. R. Ross, the undersigned have studied and understand the contents of this document in it's entirety and hereby duly undertake to adhere to the conditions as set out therein including the conditions of approval as stipulated by the Regional Manager

Signed at **Port Elizabeth** on this _____ day of _____ 20____.

Signature of applicant

Agency declaration: This document was compiled on behalf of the applicant by Stellenryck Environmental Solutions

APPROVAL

Approved in terms of Section 39(4) of the Mineral and Petroleum Resources Development Act, 2002 (Act 29 of 2002)

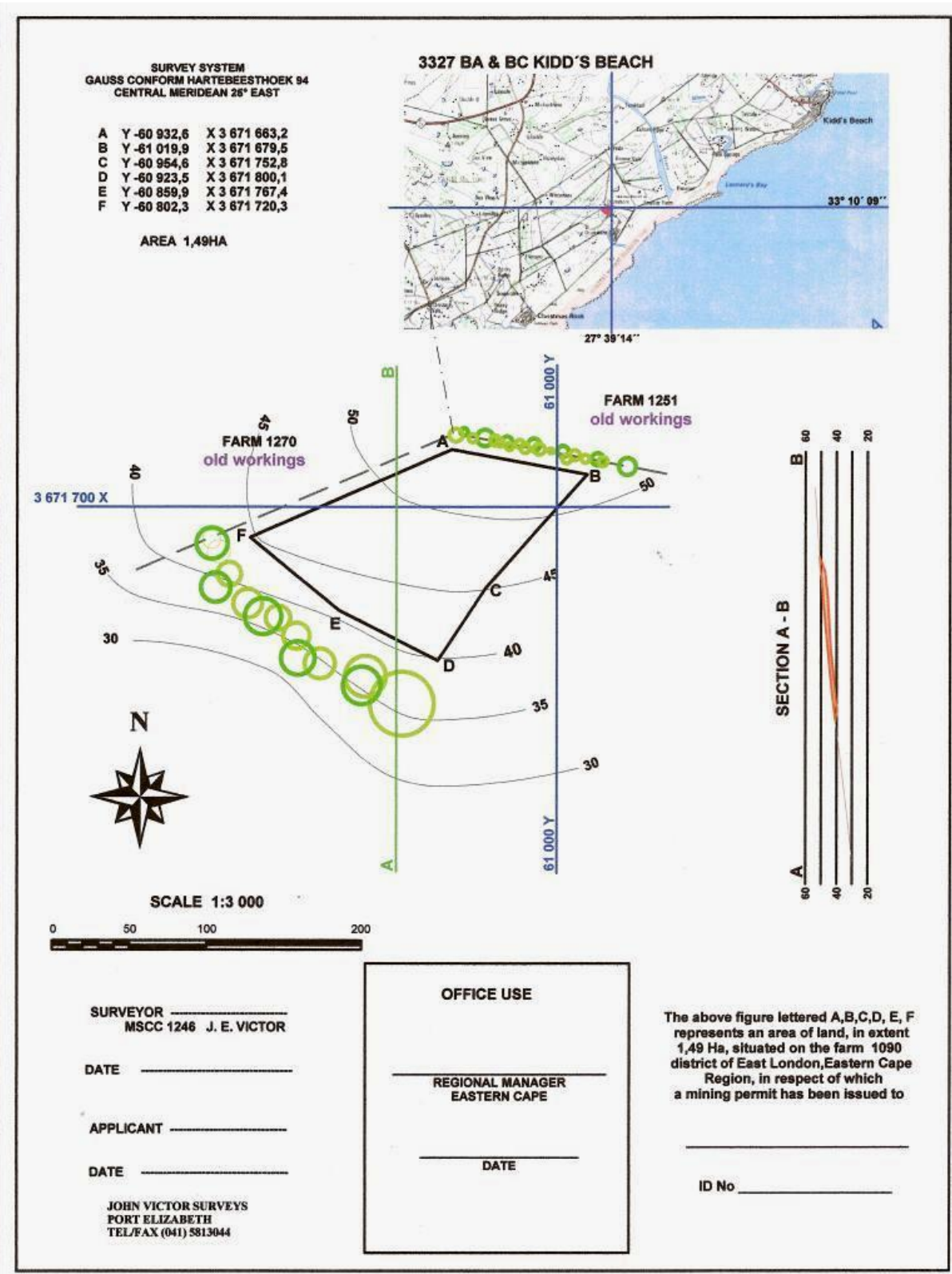
Signed at **Port Elizabeth** on this _____ day of _____ 20____.

.....

**REGIONAL MANAGER
EASTERN CAPE**

Copy right on the format and contents of this report are reserved to Stellenryck Environmental Services.

APPENDIX A: MINE MAP



CURRICULUM VITAE

MR. WILLIAM RODERICK ROSS, Identity Number 3102105014089, has been a farmer all his adult life and is the fourth generation of his family on amongst other the farm concerned.

He carries out mixed farming. Farming activities and more specifically stock farming required extensive clearing of bush in the past, flattening of dune crests through cut & fill methods and he is therefore fully capable in handling large tractors and scoops. These areas were transformed to pastures and he is therefore also fully capable of implementing water erosion and dust control measures, seeding and fertilizing techniques.

He was also instrumental in developing roads and small dams on his properties and dispose of adequate knowledge of road construction and small excavations. He cultivates also fruit and vegetables and is proficient in upgrading of soils required for this purpose.

He also manages his labourers in an effective manner and dispose of the required human resource skills to control operators onsite to ensure proper mining conduct and impose the necessary safety requirements.

He manages his own finances through a dedicated inhouse book-keeping program and assistance from his bookkeeper. He is therefore fully capable to manage the books of the proposed sand mining operation and thereby ensures a financially sustainable mining concern.

He, in his farming, is protective of the natural environment and all significant floral and associated faunal habitats related to the coastal bush and drainage lines have been conserved.

Considering the above Mr. Ross is well capable of mining sand on his farm and rehabilitating the excavation. In these endeavours he would be assisted by Mr. K.R Ross, who will act as mine manager.

CURRICULUM VITAE

MR. KENNETH RODERICK ROSS, Identity Number 5910185093080, will act as Mine Manager and has also been a farmer all his adult life and dispose amongst other of te same competencies captured in the CV of Mr. W. R. Ross.

He has buildt a number of large dams in his career as farmer and is well equipped to handle heavy duty equipment. He was also instrumental in the establishment of a coastal resort on one of their farms and is therefore well equipped to construct roads, building of residences, excavating foundations, laying of sewage and water lines and to a lesser degree provision of electricity to residences. He is also in charge of maintenance of equipment/machinery on their farms and would therefore be able to provide advice on safey standards of vehicles and assist the contractor in this regard.

He, in his farming, is responsible for supervision over laboureres and farm planning, both competencies that will be required for the mining operastion. He is also in charge of loading and dispatch of stock, fruit and vegetatbles and is thus well equipped to handle the carting of heavy loads.

Considering the above Mr. Ross is well capable of mining the proposed sand quarry and rehabilitating the excavation. In these endeavours he would assist the applicant, Mr. W.R Ross, who will act as mine manager.

Absa Private Bank East London
Old Mutual Towers, 2nd Floor
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Fax +27 (0) 43 726 4084
Swift address: ABSA ZA JJ
www.absa.co.za/privatebank

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Tel +27 (0) 43 726 4213
Faks +27 (0) 43 726 4084

15 April 2011

RE: TO WHOM IT MAY CONCERN
MR WILLIAM RODERICK ROSS

We hereby advise that as at today's date, 15 April 2011, our client, Mr W.R. Ross, has funds in excess of R150 000 (one Hundred and Fifty Thousand Rand) available in his account no 90 4502 1268 with ourselves.

We trust you find the above in order.

Yours faithfully



RETHABILE MPETSHWA
PRIVATE BANKER

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ABSA Bank Limited, Reg No 1986/00479406, Authorised Financial Services Provider, Registered Credit Provider, Reg No NCRCP7
Directors: DC Brink (Chairperson), *M Ramos (Group Chief Executive), DC Arnold, C Beggs, BP Connellan, YZ Cuba, BCMM de Virty d'Avaucourt (French), SA Fakie, G Griffin, MW Hahia, MJ Husain, A Jenkins (British), R Le Blanc (British), TM Mokgosi-Mwantembe, EC Mondlane (Jr) (Mozambican), TS Munday, SG Pretorius, *D W P Hodnett, *LL von Zeuner, BJ Willmose
*Executive Directors
Secretary: S Martin

GAYENI PLUMBING CC

Reg. No.:1998/061022/23

VAT NO. 488 017 8134

P.O. Box 267

Kidd's Beach, 5264

Fax: 088 0437818038

Cell: 083 659 8175

Email: kretzg@absamail.co.za

Cozy Corner

East London

5264

Attention : Mr Ross

29.07.2011

QUOTATION

REF: Hiring of TLB, Tip Truck for working in Sand Pit

TLB rate @ R287,50 per hour - Minimum charge 5 hours per day

6m3 Tip Truck @ R247,50 per hour – Minimum charge 5 hours per day

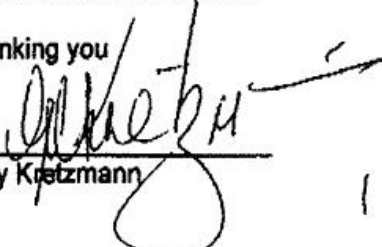
All our machine operators and drivers have been in our employment for more than 5 years.

We also have our health and safety file in place which is audited regularly for different contracts which we enter into.

Mr Ross needs to inform us two weeks in advance for machines and trucks.

If you have any queries regarding the above matter, please do not hesitate to contact me on the above cell number.

Thanking you


Gary Kretzmann



Stellenryck Environmental Solutions

4 Josephine Ave Mobile: 082 4140 464 Fax: 041-367 2049
Lorraine Office: 041-367 2049 E-mail: stellenryck@telkomsa.net
6070

PUBLIC PARTICIPATION PROCESS

Name of Applicant : Mr. W.R. Ross

Application number : EC 30/5/1/3/2/10020 MP

1. The following persons/entities were identified as Interested and Affected Parties:

- Mr. S.Lustgarten
- Mrs. F. Ross
- Cosey Corner Home Owners' Association
- Department of Roads & Public Works
- Department of Rural Development and Land Reform
- Buffalo City Municipality (Mr. Alan McIntyre)

2. Consultation documentation:

- a. First consultation letter dated 21 November 2011:

Please refer to letter below



Stellenryck Environmental Solutions

4 Josephine Ave Mobile: 082 4140 464 Fax: 041-367 2049
Lorraine Office: 041-367 2049 E-mail: stellenryck@telkomsa.net
6070

Interested & Affected Party

21 November 2011

INTENTION TO MINE SAND ON FARM 1090, EAST LONDON

Background

You are hereby informed that Mr. W. R. Ross has appointed Stellenryck Environmental Solutions CC (*SES*) to conduct the Public Participation Process for the above mentioned mining venture.

In terms of section 27(5)(b) of the Minerals & Petroleum Resource Development Act 28 of 2002, an applicant for a mining permit must consult with Interested and Affected Parties (I&APs) regarding any proposed mining activity and submit the result of the said consultation to the Department of Mineral Resources (DMR).

SES recently submitted the mining permit application to the DMR and submission was subsequently acknowledged. Acknowledgement of submission of the application must not be construed as the approval of the project, since the processes of acceptance and approval/refusal that have commenced on the date of submission, must still run its course.

This communication therefore serves to inform you about the intention of Mr. W. R. Ross to establish a quarry on the property concerned. Being an abutting landowner, you have been identified as an interested and affected party (I&AP) in the project and the purpose of this letter is therefore to:

- Inform you of the locality of the proposed mining area.
- Give you an opportunity to raise any comments you might have regarding the proposed mining venture at the meeting to be held on the 26 November 2011.
- Inform you that written documentation capturing details provided at the meeting will reach you in due course via registered post.
- Incorporate any valid concerns raised at the proposed meeting or on written correspondence in the final Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) that have to be submitted to the DMR in terms of section 39(1) of the said Act. In terms of section 39(4) of the Act the EMP must be approved by the DMR prior to the commencement of any mining or related activities.

Your involvement

This consultation process is important as it raises your awareness on the nature of the operation and grants you the opportunity to raise any comments you might have on the proposed mining venture. You are therefore requested to provide any concerns/observations you might have at the meeting and should you also wish, in writing by means of completing, as a minimum, the documents that will be forwarded to you in due course. Should any observation/concerns be identified as definite environmental/social impacts, the relevant matter(s) will be investigated, assessed and where necessary, mitigation measures will be developed and captured in the Environmental Impact Assessment (EIS) & Management Plan (EMP) to address any identified impact satisfactorily. In order to ensure that your comments are captured in the response report to be submitted to the Department of Mineral Resources, your response is required in writing not later than 15 December 2011.

Way Forward

1. You are invited to attend meeting to be held at the Cozy Corner Hall on Saturday 26 November 2011 at 10h30 to discuss any queries that you might have on the project and should you wish to also comment in writing, do so before 15 December 2011, failing which your comments would not be registered.
2. The outcome of the consultation process will be submitted to the DMR for decision making.
3. An EIA & EMP will be submitted to the DMR and other affected Government Departments for evaluation and decision making.
4. If the application is found acceptable by the DMR, a financial guarantee that will cover rehabilitation costs will be submitted to cover costs related to potential environmental disturbances that may be caused by invasive mining activities.

5. If the DMR's decision making process results in approval of the mining venture, a Mining Permit will be granted and the EMP will be approved. You will be notified of the issue of the Mining Permit.
6. Mining activities will then be conducted in accordance with the approved mining programme and EMP.
7. Annual environmental performance assessments which will include your views, will be conducted and the outcome submitted to the DMR for evaluation and any appropriate decision making.
8. On completion of mining activities, an application for closure and final environmental performance assessment, which will include your comments on the status of mining areas, will be lodged with the DMR for decision making and the issue of a closure certificate.

Attached please find the mine plan for the proposed quarry development. A background information document will reach you via registered post. Should you wish to discuss any aspect of the application please do not hesitate to contact us.

Yours sincerely



J. A. van As

STELLENRYCK

Member: J. A. van As: B.Sc (Botany & Zoology), B.Sc Hons (Eco-Physiology), M.Sc (Plant Physiology)

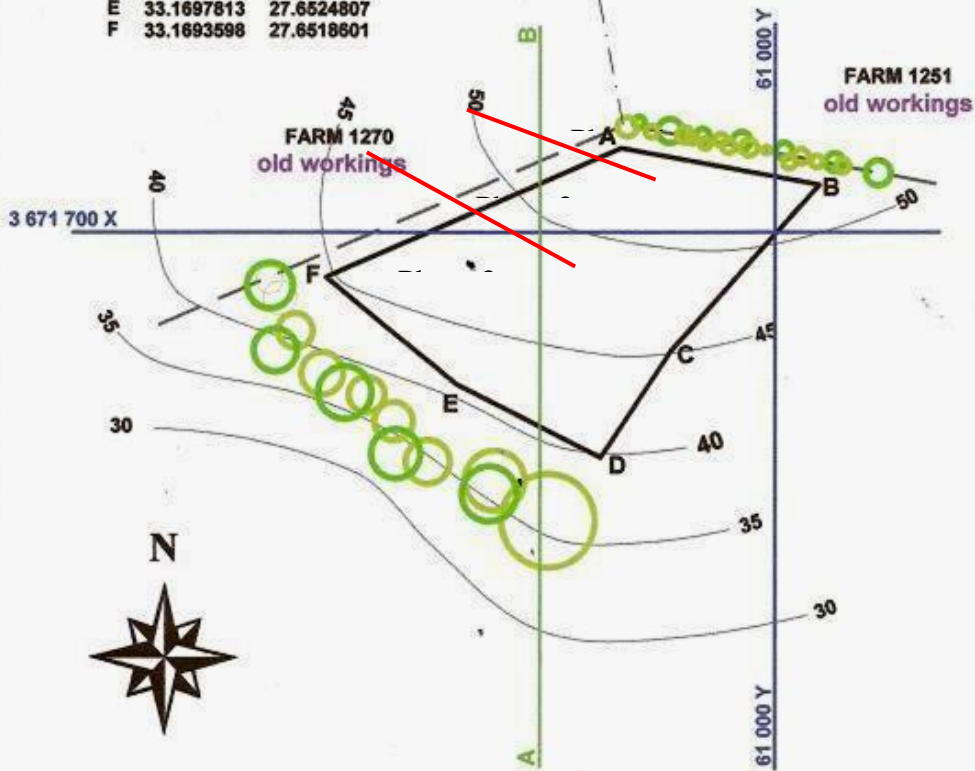
SURVEY SYSTEM
GAUSS CONFORM HARTEBEESTHOEK 94
CENTRAL MERIDEAN 27° EAST

A Y -60 932,6 X 3 671 663,2
 B Y -61 019,9 X 3 671 679,5
 C Y -60 954,6 X 3 671 752,8
 D Y -60 923,5 X 3 671 800,1
 E Y -60 859,9 X 3 671 767,4
 F Y -60 802,3 X 3 671 720,3

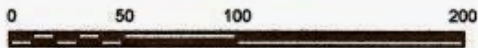
AREA 1,49HA

| | SOUTH | EAST |
|---|------------|------------|
| A | 33.1688377 | 27.6532531 |
| B | 33.1689797 | 27.6541901 |
| C | 33.1696443 | 27.6534950 |
| D | 33.1700725 | 27.6531648 |
| E | 33.1697813 | 27.6524807 |
| F | 33.1693598 | 27.6518601 |

3327 BA & BC KIDD'S BEACH



SCALE 1:3 000



SURVEYOR J. E. Victor
 MSCC 1246 J. E. VICTOR
DATE 03/10/11
APPLICANT [Signature]
DATE 03/10/11
 JOHN VICTOR SURVEYS
 PORT ELIZABETH
 TEL/FAX (041) 5813044

OFFICE USE

REGIONAL MANAGER
EASTERN CAPE

DATE

The above figure lettered A,B,C,D, E, F represents an area of land, in extent 1,49 Ha, situated on the farm 1090 district of East London, Eastern Cape Region, in respect of which a mining permit has been issued to

W. R. ROSS

ID No 3102105014089

| MR. W.R. ROSS SAND QUARRY FARM 1090, EAST LONDON | | | | | | |
|---|--------------------------------|------------------|--------------|--------------|----------------------|--|
| ATTENDANCE REGISTER | | | | | | |
| MEETING HELD AT COSY CORNER HALL, ON 26 NOVEMBER 2011 @ 10h30 | | | | | | |
| Initials & Surname | Postal Address | Telephone number | Fax number | Cell phone | E-mail address | |
| M.L. Ross | P.O. Box 5851, Greenfields | - | - | 083 440 8914 | rossel6@gmail.com | |
| BR Ross | " | - | - | 073 015 8708 | - | |
| R. Wain | 140 KISS Beach | - | - | 08333 58190 | - | |
| T. Stevens | P.O. Box 348 Kidds Beach | 043 7811037 | - | - | forndir@gmail.com | |
| J. de Klerk | P.O. Box 141 Kidds Beach | 043 7811035 | - | - | - | |
| D. Kotze | P.O. Box 476 Kidds | - | - | 08233/5021 | - | |
| T.W. Austin | P.O. Box 196 KISS BEACH | 0437811103 | - | - | - | |
| J.S. Smith | P.O. Box 458 KISS BEACH | 0437811650 | As per above | 083-5842223 | - | |
| T. Gowar | P.O. Box 141 Kidds Beach | 0437811695 | " " | 0833311930 | - | |
| R. Ougle | P.O. Box 359 KIDDS BEACH | 0437811250 | " " | 083 292 3788 | rsouyle@9EENET.CO.ZA | |
| J. FREYER | P.O. Box 351 Kidds Beach | 0824733526 | - | 0824733526 | - | |
| T. FREYER | P.O. Box 16 KIDDS BEACH | 0733474323 | - | 0733474323 | - | |
| P. MEIER | P.O. Box 5179 Greenfield | 0781220105 | - | 0781220105 | - | |
| K. MULES | P.O. Box 471 KIDDS BEACH | 081434280 | - | - | - | |
| M. FINEUR | P.O. Box 251 Kidds | 0437811573 | - | - | - | |
| K. Ross | P.O. Box 59 Kidds Beach | - | - | - | - | |
| W.R. Ross | P.O. Box 59 Kidds Beach | - | - | - | - | |
| S.S. Lurhagant | P.O. Box 3150 Cambridge Ek. | 0835003975 | 0835003975 | 0437452929 | - | |
| | Gwen @ S.L. Contractors .co.za | | | | | |

**Minutes of the Public Participation Meeting held at Cosy Corner Hall on 26
November 2011 Regarding the Sand Mine Permit Application of Mr W. R. Ross on
Farm 1090, East London**

Present:

| | | |
|------------|----------------|------------|
| J A van As | N Sharp | M L Ross |
| B R Ross | R Wimm | T Stevens |
| T de Lange | D Kotze | T W Austin |
| J Smith | T Gower | R Quagle |
| J Freitag | T Freitag | P Meyer |
| K Miles | M Enever | K Ross |
| W R Ross | S J Lustgarten | |

Opening and welcoming was done by Mr van As.

Project Background was done by Mrs N Sharp:

N Sharp: Mr Ross approached Stellenryck Environmental Solutions (SES) to prepare an application to the Department of Mineral Resources (DMR) to apply for a mining permit, which in the mining industry and the DMR specifically is considered a small application, because it's only limited to 1.5Ha and valid for 2 years with the option to renew for 3 consecutive years, making the time limit a

maximum of 5 years in total. If the applicant has not mined the material out for whatever reason within the 5 years, unfortunately for the applicant the mining has to cease.

In terms of the directions/locality to the site, if you go out the gate from Cosy Corner, the first gravel road to the right, you just go up the hill, it's a 1.5Ha area on the crest of the hill. It is on the Farm 1090, it is bordered by Farm 125 on the northern side and Farm 1270 on the west. So that should give you an indication, more or less, where it is.

So basically with the application process, what happens is the applicant will approach us and ask us to compile an application which we submit along with other required documents that the DMR requires. Then environmental consultants are appointed – SES in this case. And we have to come to the site, evaluate it and look at all the environmental impacts that could occur during the operation and post operation, with closure objection. Then we also have a public participation process which is what this is about; where we have approached everyone who are interested and affected and get your comments. We have already compiled a Draft Environmental Management Plan (EMP). We look at your comments go back to the site and then we evaluate that what you have said: did we look at it? And then we finalize the EMP. All of that will then be submitted to the DMR and then they will make a decision. The whole application process, from the minute when you put in the application to the point where the DMR makes a decision, takes about 3-4 months.

So basically where we are now in the process, is that we have not submitted the EMP yet, we are waiting for your comments before we will submit the document to the DMR.

In terms of the development: it is 1.5Ha and the site will be lowered with about 2m. We looked at all the environmental issues that can arise. We looked at the topography, geology, soil structure, water, dust, the fauna and flora every aspect of the mining process. And what we have found, which is applicable to most mines: if you develop the mine correctly from the start, you can effectively mitigate most of the environmental impacts. As suppose to bulldozing the whole site open and you create huge problems. So we proposed in the EMP, that the applicant develop the site in different phases. For the 1.5ha site we proposed 8 phases of 30m x 50m slots. So it's just big enough for a bulldozer to mine the strip. They will strip the topsoil, mine the sand and then replace the topsoil before moving onto the next slot. In this way, while they're mining the one phase they will rehabilitate the first phase. So essentially, what we will like to achieve, is having a minimum area open at any specific time and while mining, concurrent rehabilitation will take place. On this site specifically, they've got basically two areas: the top area, which is flat and probably has more sand available to mine; and then the site has a little incline, which is referred to the bottom incline area. At

the top of the site, we propose that they start mining the far eastern side: where they strip the first phase and before carrying onto the second phase, that hessian cloths will be erected around the western boundary to eliminate dust, because of the wind and location of the mine to the neighboring house. Before mining is completed at the top, we proposed that mining will cease at the top and carry on at the incline area; just because of the close neighbor to the property – to give time for the area to rehabilitate. So we considered the neighbor who lives there, as she experiences the most impacts. Mining will then just continue in the strip-mining process until the whole site has been mined. In this whole process, we want to eliminate dust and erosion, especially on the incline area. So we proposed this alternative strip method of mining and that as they continue mining, that contours will be constructed on the incline area. This will manage erosion on the slope.

In terms of the environmental impacts, we looked at everything and the impacts that will probably raise the most issues will be the soil structure: because obviously once an area is disturbed the fertility of the soil can be lost; so upgrading the soil, before re-spreading the topsoil and concurrently rehabilitate, will be very important to the applicant. It will not help them to bulldoze the whole site open and then they're stuck with soil that is infertile and they actually struggle to rehabilitate. The strip mining method will continue, so that by the end of the mining life time, the applicant only has one strip open of 30x50m left to rehabilitate.

The other issue that goes hand in hand with the loosing of soil profile was erosion, so we proposed contours placement. Dust was also an issue that concerned us. We also looked at water issue; because you need water on the site to help rehabilitated the site. In the EMP, every environmental impact has been looked at and listed with it is detailed, prescribed mitigation measures that the applicant has to look at: "Where we say do this to eliminate that", so it's basically like a recipe that they have to follow while they mine. And the DMR, once they have approved that document which becomes a legal document to the applicant. He has to then comply with whatever is said in the document. And usually the DMR will ask the applicant to submit a performance assessment report during the second year of the mine, where the applicant has to ask a consultant to come to the site and evaluated the site according to what the EMP said and compile an audit report. It can either be a good report, indicating the applicant followed the EMP, or did not. Then the DMR can decide to temporary stop the mine until all outstanding rehabilitation issues has been sorted out.

The applicant is also liable to submit a financial guarantee to the DMR, if the applicant fails to rehabilitate the site, the DMR has money where they will either force the applicant by not releasing the money until the site has been rehabilitated; and in the closure process, you will be consulted again and asked if you are happy with the rehabilitation done on site. If you are satisfied, the DMR will take that into consideration. But if you are not happy and the DMR is not happy they will hold the

money back; or the DMR will take more drastic measures and contract someone to rehabilitate the site.

So that is basically the whole process and the whole development. The floor is now open for your comments.

J van As: We are from an environmental background, but obviously being in the mining industry for about 17 years now – the East London area has a big problem at this point in time. East London is running out of readily available sand. There is no more available sand, unless we go into the dune systems, where one is actually reluctant to start, because while mining is ongoing, it is quite a destructive operation. But I think it needs to be said and it was actually detailed in 1980 already that at some stage East London's available sand resources are running out. We are seeing that people are targeting smaller and shallower deposits, because there are simply not sand available for construction purposes. It is a problem for East London. In my own opinion, if we ever get areas that have been transformed, that is at this point in time, the best option, because there are simply no better environmental alternatives than going into more protected areas. All of the other sites, you have the option to go onto crop farmers land, which will severely impact on the farmers and the application process.

This is a bit of background information for you to understand. People want to mine just to mess up everything and to some extent, that is happening whilst you are mining. But is also an extremely important industry, because if you don't have construction material, there is no growth. Somehow, somewhere we have to find new deposits.

Question: I would like to know how this mining will influence us as the residents. What is the direct impact on the residents in this estate?

J van As: It was those impacts that Mrs Sharp have listed earlier. In the event of an uncontrolled mine you will have your dust issues. In my opinion it is the main issue that needs to be curbed. The other issue is that some of the houses might actually see the mining area – so there is low to moderate visual impact. But we will have a look at that today. From a noise perspective, I don't think that noise will really bother you too much. The only noise will be the reverse sirens that are legally required for machines. They are not going to mine at 6am or 8pm when people enjoy family time. These are your biggest impacts that you can anticipate.

Question: How will mining impact on our road? We have very bad roads and it will not be able to handle heavy vehicles.

N Sharp: We have looked at that. We have actually proposed that the material will not be carted via the tar road leading from your estate to the main road. But we looked at the gravel road north of the site, at the top on the mine boundary, leading past the neighboring farms, which will connect with the R72 eventually. But we looked at the tar road leading to the estate and we have assessed that it will not be able to handle the heavy vehicles.

Question: What is the impact you expect the mine to have on the wild life? There are actually bucks running around in that area, especially where you are proposing to mine.

J van As: If you look at this specific site you will see that there is transformed grass on the site and nothing on the site that will sustain wild life. The impact on the wild life is considered zero.

N Sharp: It is only 1.5Ha that will be mined in strips and with wild life especially buck, they tend to vacate properties while mining is ongoing and return to feed on newly established grass. Since the mine area is surrounded by other fields, bucks can easily migrate to the surrounds and return when mining stops. If the rehabilitation is done well, it has been found that more animals return to the site than prior to mining. If mining is done sensibly the impact on wild life will be insignificant.

Question: What will the operating times be?

N Sharp: There is a time schedule proposed: 7:30am – 6pm in summer and 8am-5pm in winter. No working on weekends, unless they have to work on a Saturday until 1pm. Also no working will be performed on public holidays.

Question: Will someone 'police' the mine?

N Sharp: Once an application has been approved it is the DMR's responsibility to look after the mine. At the DMR, there are environmental officers that are assigned to each mine. They have to come out to the site prior to approval, so that they know what is going on, and then during the life of the mine the applicant have to submit an environmental performance assessment, where they basically audit the site from an environmental point of view. So if any of you have complaints you can lodge your complaints to the DMR's Environmental Section.

Question: Will mining influence the quality of the water?

N Sharp: No, because the mine is so shallow, only 2m deep, and will not intercede the ground water table. They will use borehole water to irrigate the site. In terms of sediment, we have proposed that contours will be constructed to mitigate sheet wash and erosion so no sediment is expected to wash down the slope.

J van As: The sand to be mine is washed out sand, depleted of minerals on top of a clay layer of soil. That is why we are able to use that in the construction industry because it does not consist of a lot of clay. So if you remove those sands, you are not actually creating a source of sediment that can pollute your ground water. Secondly, the clay layer underneath the sand becomes a cut-off layer, which means that it actually directs the sub-surface water towards the sea and not into the aquifers. This area, will for example, will not be a major source for ground water *per se*. The ground water will come from the inland sandstone structures, so the mine will not pollute your water. They have got one machine there and most machines are well maintained. So there will not be any major oil spillages.

Question: What water will be used to irrigate the site, since we actually have a shortage of water here and we can't even water our gardens?

J van As: I can't see that the mining will really have an impact on your water usage. If you look at the East London area, most of the sand quarries over the past 30-40 years have not struggled to rehabilitate. What we have actually said in this case we need to look at the impacts and address the impacts that could negatively impact on you. So from that perspective, we have actually said that seeing that we do have water available and because of concurrent rehabilitation if we can have irrigation of area irrigated once off or twice just to head start the vegetation. That is going to happen maybe once a month. With the 8 phases to rehabilitate: that will actually indicate to you that over the period of 2 years how many times will the site be subjected to irrigation. With the climate here

irrigation might not be necessary – it is a precautionary measure to mitigate dust, erosion and visual impacts. This is a too small operation area to impact you in terms of water use. This is also not a concurrent irrigation system. To control dust the applicant has a responsibility towards those affected most. Thus hessian cloths will be erected and mist spray will be established to assist to keep the dust levels down. Obviously, if you are really in a drought season and if there is indeed no water available, then obviously you would have to work with Mr Ross to see how you could accommodate him and how he can accommodate you. Mining has changed a lot; there should always be interaction between people affected and people operating. Therefore, speak to Mr Ross if there is a problem and see if you can get to an agreement. Every mine owner normally appreciates it, rather than a person seeing something is wrong and reporting it to the DMR. Then there is some bad blood between the two parties. That is something that you should consider, speak to Mr Ross if there is something wrong. If Mr Ross does not want to come to party, then you can contact the DMR and they will then follow up on the complaint. Those are the avenues that you have.

Question: The area that is going to be mine, is that the only area where sand is available, or once it is finished are they going to find another area and then there will be continuous mining over a number of years?

J van As: No, this is short term. I can't see any other areas that have available sand. A land owner only gets 1.5Ha that he is allowed to mine. It is increasingly difficult to find sand of which the mining process does not affect people too much or the environment too much. Now Mr Ross may apply on another property for sand mine, but not on his farm again, but socially it might create a lot of problems. Mr Ross has also looked in the area where sand is available and favorable to mine, that is why that specific piece of land was chosen to be mined.

Question: In your opinion, does this affect the value of our properties in the interim?

J van As: That question is brought up at almost every development. As I have said, the mine is valid for two years. If you might want to leave in the next two years, then yes, potentially the mine can impact the property value, since people don't necessarily want to stay so close to a mine and potentially it can affect you, but if mining is done correctly, it shouldn't actually affect your property value. In the years that I have been involved with mining, no sand mine has ever decreased the property value, if it was rehabilitated. There might be a risk, but most likely you will not have a problem.

N Sharp: A good indication to you will be the sand mine that occurred further north from this application site – did mining affect your property value?

J van As: Every mine must close when mining is done or minerals removed, and when you enter the closure phase a letter will be sent to the chairman of this estate, that will inform you that we are entering the closure phase. That is a phase where the rehabilitation has been completed by maybe 60-70%, and you will be asked for comments and if you are satisfied with what you see. Then you have the opportunity to voice any grievances that you might have on the visual impact of the specific quarry or you can say that you are satisfied and then they will close it, but they will not close it if it is not rehabilitated. And eventually if Mr Ross is not going to rehabilitate they will appoint someone and take his money and rehabilitate it themselves. That is how the system works.

Comment: My house will be affected probably the most, by this mining site in terms of visual impact, since I will directly have a view of the site for the next two years. So obviously we do like the view which for the next two years we not going to have that view, so I'm very concerned about this development.

Question: I would just like to go back to an earlier question about the water. Is there going to be a separate borehole for the mine, or are they going to be using the borehole that is now currently being used for Cosy Corner? Because the mine might use a lot of water to control dust because of all the wind we have here and to rehabilitate and I would not like our water supply being cut-off to facilitate the mine.

J van As: Water is available from the applicant's two boreholes and he has a permit to pump water out of the stream, so no, the borehole water used at Cosy Corner will not be used. I agree with you, we would not like to establish a sand quarry that cuts-off your water. That will not work so you have property right that the mine must fully respect, so from that respect the mine may not cut-off your water supply.

Question: Security? How will the mine control unauthorized people to wander?

J van As: A sand quarry operates with limited amount of people. The people that will be onsite will only be the front-end loader operator and the truck driver, who will leave as soon as the truck is loaded. There will not be any people staying on site, so there will be two people at most at the site

during working hours. Also trespassing and security were captured in the EMP document with consequences listed. This is also something that needs to be managed from Mr Ross' side.

Question: Is there a contact number or person that we can complain to?

J van As: Like is has been said the appropriate thing will be to contact Mr Ross first, if there is something that is bothering you, so that he can look at it and address it. We are all human, discuss with him the issue(s) at hand. But as I said, if this issue becomes a real issue and Mr Ross is not willing to listen to you, then obviously you have to contact the DMR. Then you should also draft a letter to them listing your issue and they will contact Mr Ross and they will look at it and will come back to you with an outcome. They will take up complaints with Mr Ross and he will receive a departmental directive that he should comply with.

If there is still something that you would like to bring to my attention, please do so. I have said in my letter that comments must be received before the 15th of December 2011. Please make sure everyone has signed the attendance register.

Mr van As closes the meeting at 11:15am.

Consultation letter after acceptance of application:



**PUBLIC PARTICIPATION: MINING PERMIT APPLICATION FOR THE
MINING OF SAND ON FARM 1090, KAIZER'S BEACH, EAST LONDON**



PREPARED FOR:

Mr W R Ross

P.O. Box 59

Kidds Beach

5264

March 2012

Tel. & Fax: 041-3672049 · Cell 0824140464 · 4 Josephine Avenue Lorraine 6070 Member: J. A. van As: B.Sc (Botany & Zoology), B.Sc (Hons) (Eco-Physiology), M.Sc (Plant Physiology)



Stellenryck Environmental Solutions

4 Josephine Ave Mobile: 082 4140 464 Fax: 041-367 2049
Lorraine Office: 041-367 2049 E-mail: stellenryck@telkomsa.net
6070

Interested & Affected Party

13 March 2012

INTENTION TO MINE SAND ON FARM 1090, EAST LONDON

Our recent facsimile regarding the above mining concern refers.

You are hereby informed that Mr. W.R.Ross has appointed Stellenryck Environmental Solutions CC (*SES*) to conduct the Public Participation Process for the above mentioned mining venture. *SES* has already embarked on the process and held a public meeting on 26 November 2012 with abutting residents discussing the mine application and environmental impacts and have noted their comments, mostly general in nature and no objections.

In terms of section 27(5)(b) of the Minerals & Petroleum Resource Development Act 28 of 2002, an applicant for a mining permit must consult with Interested and Affected Parties (I&APs) regarding any proposed mining activity and submit the result of the said consultation to the Department of Mineral Resources (DMR).

Stellenryck submitted the mining permit application to the DMR and the application was accepted by the DMR on 18 February 2012. Acceptance of the application must not be construed as the approval of the project, since the process of approval/refusal that has commenced on the date of acceptance, must still run its course.

This communication therefore serves to inform you about the intention of Mr. Ross to mine 1.5ha of his property on an area that has been totally transformed and that will be developed over the next 2 years. You have been identified as an interested and affected party (I&AP) in the project and the purpose of this letter is therefore to:

- Inform you of the locality of the proposed mining area.
- Give you an opportunity to raise any comments you might have in respect of the proposed mining activities detailed in the attached annexure.
- Give you an opportunity to raise any comments or concerns you might have in respect of the applicant wanting to make use of your access road to cart material to the market.
- Incorporate any valid concerns in the final Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) to be submitted to the DMR in terms of section 39(1) of the said Act. In terms of section 39(4) of the Act the EMP must be approved by the DMR prior to the commencement of any mining or related activities.

Other interested and affected parties that were identified are Mrs F. Ross and Mr S. Lustgarten who were also consulted.

Your involvement

This consultation process is important as it raises your awareness on the nature of the operation and grants you the opportunity to raise any comments you might have on the mining venture. You are therefore requested to submit your comments/observations/concerns in writing by means of completing, as a minimum, the accompanying comment and registration sheet. Should any observation/concern be identified as definite and significant environmental/social impacts, the relevant matter will be investigated, assessed and where necessary, mitigation measures will be developed and captured in the Environmental Impact Assessment (EIA) & Management Plan (EMP) to address any identified impact satisfactorily. In order to ensure that your comments are captured in the response report to be submitted to the Department of Mineral Resources, your response on the mining application *per se* is required in writing not later than 10a.m. on 18 March 2012. Comments on environmental matters must reach this office not later than 28 March 2012.

Way Forward

9. The outcome of this consultation process will be submitted to the DMR for decision making.
10. An EIA & EMP will be submitted to the DMR and other affected Government Departments for evaluation and decision making.
11. If the application is found acceptable by the DMR, a financial guarantee that will cover rehabilitation costs will be submitted to cover costs related to potential environmental disturbances that may be caused by invasive mining activities.

12. If the DMR's decision making process results in approval of the mining venture, a Mining Permit will be granted and the EMP will be approved. You will be notified of the issue of the Mining Permit.
13. Mining activities will then be conducted in accordance with the approved mining programme and EMP.
14. Annual environmental performance assessments will be conducted and the outcome submitted to the DMR for evaluation and any appropriate decision making.
15. On completion of mining activities, an application for closure and final environmental performance assessment, which will include your comments on the status of mining areas, will be lodged with the DMR for decision making and the issue of a closure certificate.

To provide additional information on the project please refer to the attached background information document on the proposed project. Please note it is not intended to provide all details on the project or to replace the EIA/EMP. Should you wish to discuss any aspect of the application please do not hesitate to contact us.

Should you wish the applicant to consult any other party during the EMP process, please provide *SES* with the relevant contact details.

Yours sincerely



J. A. van As

STELLENRYCK

Member: J. A. van As: B.Sc (Botany & Zoology), B.Sc Hons (Eco-Physiology), M.Sc (Plant Physiology)

**PUBLIC PARTICIPATION REPLY FORM FOR MINING PERMIT APPLICATION:
FARM 1090, EAST LONDON**

Please return by fax or registered post to:

Fax: 041-3672049

J. A. van As

Stellenryck Environmental Solutions

Postal address:

Stellenryck Environmental Solutions

4 Josephine Avenue

Lorraine

6070

Contact details of Interested & Affected Party

Name:

Property/Organization

Postal address

Telephone Fax No.....

Mobile E-mail.....

Please list your comments on the project (Should you require more space use additional page):

1.....

.....

2.....

.....

3.....

.....

PARTICULARS OF APPLICANT

Mr W R Ross

P O Box 59

Kidds Beach

5264

Tel: 043 781 1898

Cell: 083 283 7118

PARTICULARS OF LANDOWNER

Mr W R Ross

P O Box 59

Kidds Beach

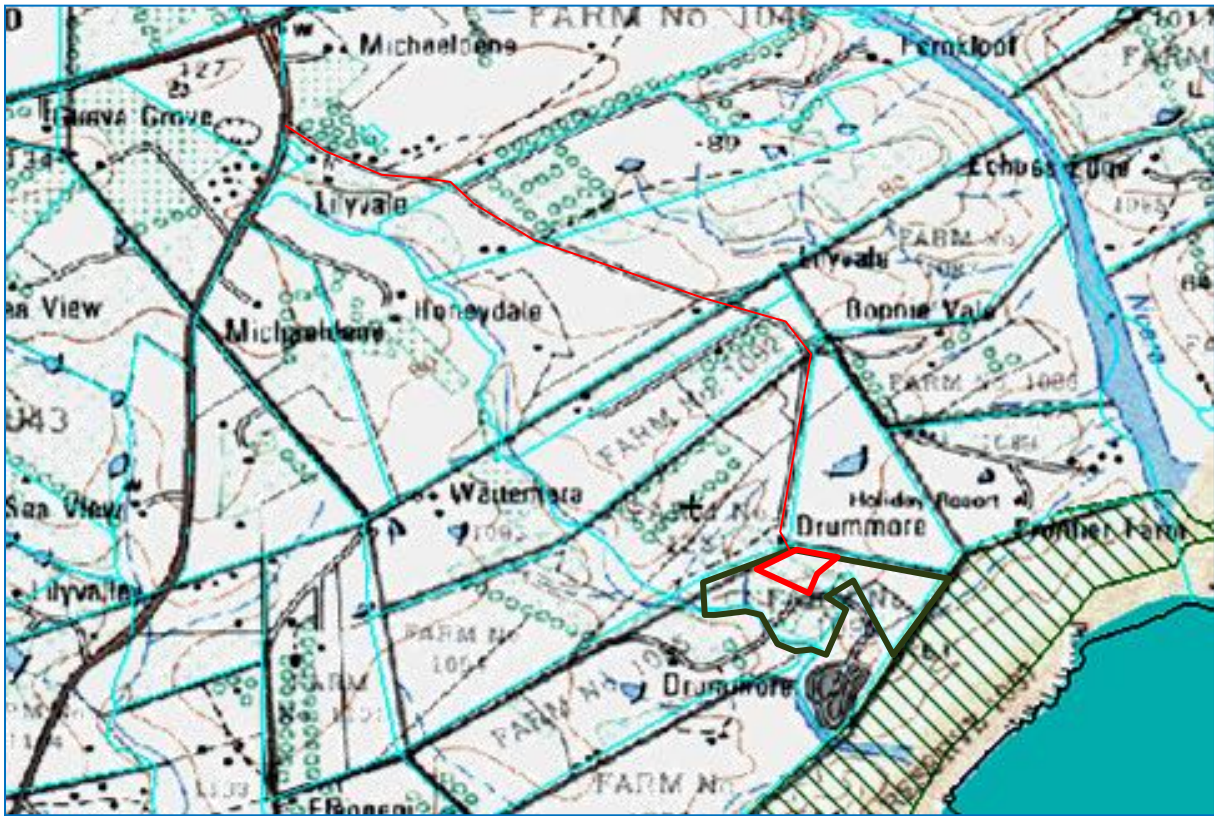
5264

Tel: 043 781 1898

Cell: 083 283 7118

PLAN SHOWING THE PROPERTY AND MINING AREA CONCERNED.

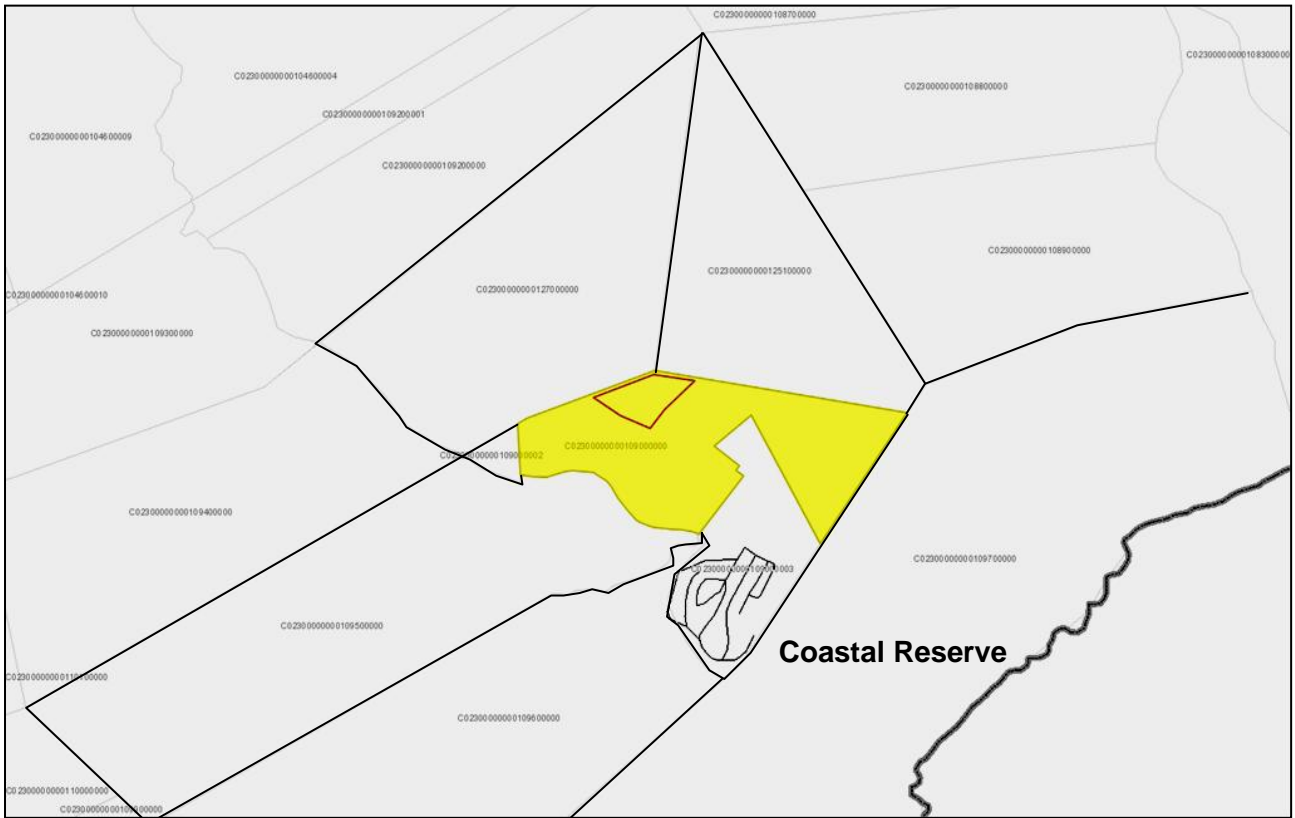
The proposed quarry is approximately 33 km south west from East London and is on private property. The R72 road lies about 4 km north from the mining site. Access to the Cosy Corner development is via the Kayser's Beach turn off and private farm road but due to its poor surface status, it will not be used for hauling purposes. It is intended that hauling be conducted via the servitude road located to the north-west and depicted on plan. Maintenance of this road will be the responsibility of the land owner and applicant.



Aerial view of property concerned and access road



Mine area in relation to property boundaries



EXTENT OF MINING AREA

The mining site is 1,5 ha in extent.

DEPTH OF MINE

Between 1 & 2m.

LIFE OF MINE

Two years with possibility to renew permit three times for one year each if market demand or operation challenges prevent the concern to operate at maximum capacity.

PROJECT DESCRIPTION

The proposed quarry will be a private concern licensed by the Department of Mineral Resources. A transformed section of the property will be turned into a low-key sand mining operation within the demarcated area depicted on plan.

PICTORIAL RECORD



Abutting property and residence of Mrs. Ross and view of the site



Cosy Corner development visible from the site

CONSTRUCTION PHASE

No office infrastructure or hydrocarbon storage facilities will be constructed on the property. Waste disposal will be by means of strategically positioned waste bins that will be emptied at a regular basis. No Eskom and Telkom service points are required. No accommodation for personnel is required and the workforce will commute to the site on a daily basis. There are no toilet facilities available onsite and it will be provided in the form of chemical toilet. No maintenance or salvage yard will be established since all vehicles will be maintained at workshop of the contractor. If required a workshop at the farm could facilitate minor services and repairs.

The only construction activities involved will be the removal of the topsoil and vegetation, which will be stored ahead of each phase; the clearing of vegetation to construct temporary haul roads as depicted on plan. The temporary haul roads which will run north and east of the site and the eastern haul road will be lengthened as mining progresses towards the next phases. During the life of the mine haul road will be protected against erosion and rehabilitated at closure of the mine.

Noise nuisance and dust pollution will be applicable, especially in relation to Mrs Ross who is the immediate abutting landowner. Topsoil of phases 1, 2 & 4 shall be seeded, irrigated and covered with shade cloth to facilitate grass establishment and reduce windblown dust.

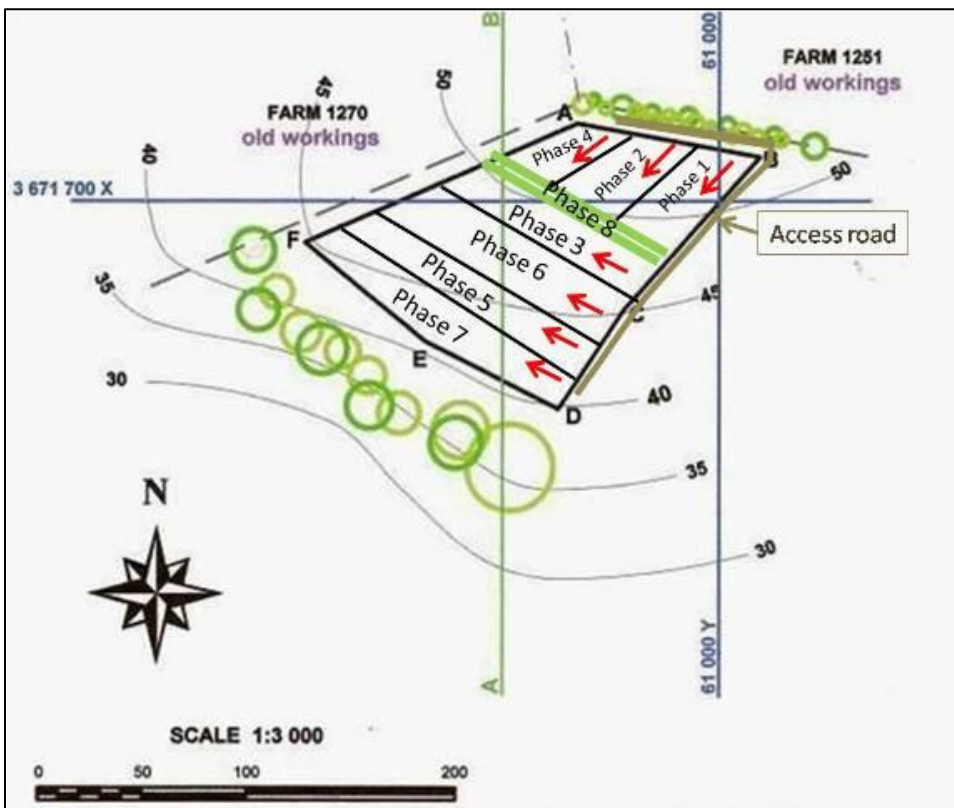
QUARRY DEVELOPMENT

Mining methodology

The quarry will be developed using the conventional open cast slot mining method. An excavator will be used for this purpose. Mining will be done in seven (7) phases as depicted on the mine plan. Approximately 25000 cubic meters of sand will be extracted over a period of 22 months at an average production rate of approximately 1300 cubic meters per month.

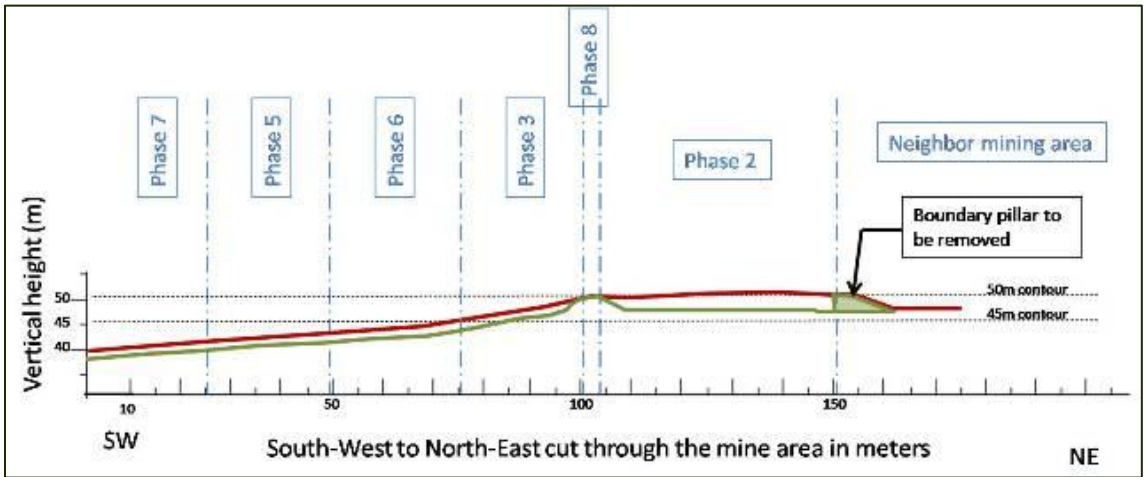
The mine area will be divided into two areas, the flattish crest area consisting of phases 1, 2 & 4 and the slope area, consisting of phases 3, 5, 6 & 7. Phase 8 will remain as a 3m wide pillar separating the two sections. The purpose of the pillar is to control storm water runoff and prevent erosion on the slope area.

A portion of the existing quarry floor directly behind the production face will be used for establishing a small stockpile. Once phase 1 is mined out, mining will progress to ensuing phases in similar slots.



Mine Development plan

Before mining of phase 2 commences, 2-2,5m high shade cloth screens must be erected on the north-western perimeter of this phase to act as a dust and sand trap. To mitigate the impact of dust to the north-west phase 4 will only be developed after phases 1 & 2 were semi-rehabilitated. Mining and rehabilitation of the inclined area will be done by mining and rehabilitating alternative slots, as depicted on plan to curb any erosion of the slope.



Cross section of the profile of the area before and after mining. Note: The red line represents the current profile; the green line represents the profile after mining.

Phase 8 will not be mined and will serve as contour to divert runoff away from slope below. If instability of rehabilitated areas require, the boundaries between phases 3 & 6 and 5 & 7 will be used to create contours to direct storm water to the south-east of the site. For this purpose cuts through the profiled face will be required.

Water for dust suppression and re-vegetation process will be supplied by means of a water tanker to be filled from the boreholes on the farm. Drinking water would be kept in a clean PVC container and topped up on daily basis.

The proposed operation would not be continuous due to the low demand envisage and production rate should generally not exceed 70 cubic meters per day, which will result in 7 loads per day, more or less one every hour. Working hours will be from 7.30 am to 5 pm five days a week.

Water for dust suppression and re-vegetation process will be supplied by the applicant from boreholes on the farm.

PROVISIONAL ENVIRONMENTAL IMPACT ASSESSMENT

Public participation

The following persons & entities were consulted:

- Abutting landowner, Mr S. Lustgarten;
- Cosy Corner Home Owners Association;
- The Department of Mineral Resources will consult all relevant Government Departments, for example Environmental Affairs, Water Affairs, Agriculture, Forestry

Topography

Mining the site will lower the surface topography between 1-2m, depending on the depth of available material, and should follow the natural contours of the area. Mining will therefore only cause a shallow depression in the landscape. The crest area will drain via percolation through the abutting sand reserves whilst the area on the slope will be partially free draining. Contours will be used to control runoff and prevent erosion. Production faces will be sloped to 1:2-1:3 gradients to blend the mining area with the surrounds.

Removing material will alter the topography of the site permanently, but considering the 1) small area to be affected, 2) the limited depth of the excavation and 3) the integration of the site with the surrounds, the impact is rated of low significance.

Soils

Soils of this area are marginally due to its poor fertility and structure. Soils will be disturbed when cleared and will affect their structure and fertility during the 3-6 months' storage period. All topsoil will be conserved during operations. During the rehabilitation phase the topsoil will be reintroduced on the quarry floor and upgraded with manure and inorganic fertilizer to fast track establishment of vegetation. With mitigation the impact is rated of low significance.

Erosion

Soil in the mining area is sandy and has good draining capacity and will render the soil to be less erodible. However, the steep incline on the bottom section of the mining area will most definitely be subject to erosion after disturbance because of the slope and the fact that the draining capacity will be large removed by mining.

Erosion is therefore not regarded a significant factor in the crest area but is considered a moderate-high risk on the slope area involved. Therefore, erosion control measures will be implemented throughout the lifespan of the mine. Diminishing sand reserves towards the south-west could prevent mining of a portion of this area.

Land use & Land capability

Bush clearing occurred many years ago to establish a grazing unit and is used for this purpose. The grass cover disposes of a low-moderate carrying capacity and the slope area hosts a significant weed cover. After the sand deposit is removed, an improved pasture unit would be established and weeds will be removed. A minor impact on land use and land capability would be imposed. The proposed mining will not have any impact on the land capability of abutting properties.

The proposed site is located close to Mrs. Ross' residence and is visible from a few double storey residences within the Cosy Corner development and will impact on the recreational use of these properties. However, mining on the property of Mrs Ross occurred in the past and seemingly had no significant impact on her or Cosy Corner residences. An aggressive, concurrent and phased rehabilitation process will be followed to ensure effective mitigation of the mentioned impact. The impact is rated of low significance if environmental impacts associated with the development are addressed effectively and timeously.

Flora

Originally the site hosted Albany Coastal Belt vegetation, but was cleared for pasture purposes similar to the abutting land. Albany Coastal Belt currently disposes of a 'least threatened' conservation status. From a vegetation perspective the area represents an insignificant vegetation parcel. Currently the site hosts a *Cynodon-Stenotaphrum* cover with some fynbos elements and *Cirsium vulgare*. The slope section disposes mostly of a grass and weed cover. Clearing the site and establishing pasture will therefore be a benefit to the applicant. With reinstatement of topsoil and supporting seeding programme, the grassland will be reinstated over time.

Fauna

During the two site visits no faunal species of value was observed. The secondary grass cover does not provide much habitat for nesting sites and protection for wild animals other than perhaps for small rodents, a few reptiles and insects. Since the area is still subject to grazing cycles and human interference, especially considering the presence of the residential development and abutting mining and farm practices, the site poses no significant faunal niche. However, it is considered a faunal corridor and larger animals, taking refuge in the Coastal Reserve may roam the area during the night. Since the site is small and will be fully rehabilitated no permanent or significant impact will be imposed on species diversity, forage patterns or migration.

Sensitive sites

Mining will be done in an already disturbed environment, thus no sensitive areas on site has been identified. The minor stream to the south is rated a sensitive environment but will be protected by adequate buffer zones. The Coastal Reserve is a formally protected area but the distance to the Reserve precludes any impact on it, especially considering the housing development being located in-between the proposed mining site and Reserve. The Christmas Rock-Gxulu River Mouth MPA is located offshore of the Coastal Reserve and will obviously not be affected. The wider area is rated a CBA1 terrestrial area which requires that developments in this area do not impact on natural land parcels, drainage lines, the Coastal Reserve or MPA area. The proposed development would not impact on any of the mentioned areas. The site is located distant to any aquatic CBA 1 & 2 areas.

Surface water

The study area is drained by a small stream approximately 130m to the west km away from the site, which is only about 1km long and is better known to the local people as “Ross’ Creek”, which empties in a minor estuary.

Uncontrolled runoff from the mine area could result in an increase in TSS of the stream with associated smothering of vegetation. Runoff will be mostly contained in the excavation and where necessary directed with contours to grasslands south-east of the site. If runoff is

controlled effectively and disturbed areas vegetated concurrently with mining, the impact of mining on surface water quality is rated of low significance.

Groundwater

Mining will be restricted to a depth of 1-1.5m and will follow the natural contours of the site, thus no ground water source will be penetrated or exposed during mining. Depth of groundwater located within the sandstones exceeds 30m. The impact can be rated as insignificant.

Air Quality

Noise

The north-western mine boundary borders is within 50m from Mrs Ross' residence thus for the duration of the life of the mine, she will be subjected to noise generated by the excavator and trucks. It is expected that the noise levels at the mine boundary and thus the neighbour, would be between 60-50 decibels during the day when operating in phase 4. Mining within the other phases, especially on the slope will impose a lesser impact. The impact is rated low-moderate when mining on the crest of the dune and low when mining on the slope. This impact would be unavoidable but since mining was previously allowed within very close distance to the west and east, it is anticipated that the landowner did not experience it an unacceptable impact. To accommodate Mrs. Ross, no work will be conducted over weekends, religious holidays and will be restricted to normal working hours.

The Cosy Corner development is 400m away and topographical screening will preclude any significant impact on its residents

Dust

Potential dust impacts related to the quarry development will be the most significant impact of the proposed quarry. However, the fact that the only person that could be affected is Mrs. Ross, reduces the significances of the impact. In addition, the sand reserves generally dispose of low levels of silt and clay and it would mainly be the topsoil that will pose a dust nuisance. On the other hand sand will be generally fine and wind blasting could be expected when south-easterly winds prevail. With no mitigation measures in place, the impact could be moderate to high during windy periods.

The mentioned impacts would be mitigated by:

1. Only develop phases 1-2 on the crest before rehabilitation commences. Phase 4 will only be developed once phases 1 & 2 have been stabilized.
2. Shade cloth screens 2-2,5m high shall be established on the north-western perimeter of phases 1 & 2 when developed to act as dust and sand screens and repositioned when mining progresses. It must be maintained until the top, flat section has been rehabilitated.
3. During windy periods affected areas will be irrigated.
4. Topsoil piles shall be covered with shade cloth.
5. Disturbed areas shall be kept as small as possible and grassed concurrently with mining.
6. Mrs. Ross to receive some compensation for having mining in such close proximity to her residence.
7. Truck movement every 45-60 minutes is anticipated and since dust generation is also determined by hauling speed it must be reduced to below 30km/h within 100m from Mrs. Ross' residence.

Due to the distance involved and being mostly located outside the major wind paths, Cosy Corner Residence should not be subject to any significant dust impacts.

Archaeological findings

The site was surveyed and no findings were observed but the site will be subject to a further survey by a specialist.

Traffic

The gravel access road to Mrs. Ross' property will be used as haul road since the access road to Cosy Corner disposes of a sub-standard tar surface and will not be able to accommodate heavy traffic.

Road integrity: Access road

Access to the site from the Lillyvale Road will be via a gravel servitude road across Mr. Lustgarten's farm. The road is not constructed to carry heavy vehicles and will require grading and upgrading of the wearing course from time to time. The road will be protected against erosion by means of storm water drains. The impact on the integrity of the road is deemed of low-moderate significance when the necessary maintenance is provided.

Road integrity: Lillyvale, Kaizers Beach & R72 roads

The Lillyvale Road is of average to poor standard and is also used by two other mining concerns and it will experience an additional impact on structural integrity and applicant will have to contribute to maintenance. The impact on the road is deemed to be of moderate significance. The Kaizer's Beach Road is of average standard but experiences edge breaking caused by heavy vehicle traffic from farms and other mines and will experience an additional impact on structural integrity. The impact is rated of low-moderate significance. The R72 is in good condition but considering that this road is purposed to maintain heavy traffic flow an impact of low significance is anticipated. The limited increase in traffic volume added to the R72 is deemed insignificant but the Lillyvale & Kaizers Beach road will experience a moderate increase in heavy vehicle traffic.

Line of sight at all accesses is reasonable and residents are used to mining vehicles using the roads concerned. The upgrading and maintenance of all three these roads rest solely with the District Road Engineer (DRE) and the necessary consultation must be established with the Department of Roads and Transport with regards to increased maintenance of roads. If required to a contribution must be made to maintenance of roads concerned.

Road safety

Heavy trucks could result in increased safety risks for local residents using the roads involved. Truck drivers will be bound by a safety code and any transgressions will be severely punished. Appropriate heavy vehicle signage will be erected along the Lillyvale and Kaizer's Beach Roads and at the access with R72 as per the specifications of the District Roads Engineer. Considering the low traffic density on the gravel roads the transport impact is rated of low significance.

Visual impact

The study area is bordered to the north-west by Mrs. Ross' farm house whilst the remaining surrounding area is uninhabited for at least 400m. Mrs. Ross will experience direct visual impacts. This impact will be mitigated by the establishment of shade cloth screens on the north-western perimeter of individual sites. The screens would, however, cut off pleasant views to the south-east. The site is generally not visible from Cosy Corner residences, except for a few double-storey residences. Distance to the site will mitigate the impact but if

necessary, screens could be established on the south-eastern perimeter of each phase. The site will, however, not be visible to any public road user.

Considering that only a small portion (1.5Ha) will be disturbed and with a proper re-vegetation approach the visual impact could be successfully mitigated over the short term. The newly established depression, following the natural incline of the topography, will be readily absorbed in the landscape.

In conclusion, the all-over visual impact can be rated low-moderate over the short term.

Social Impacts

The establishment of the concern will have no impact on surrounding agricultural activities. Mrs. Ross will experience dust and noise impacts, mostly when adverse climatic conditions prevail. It will affect the rural ambiance and character of her property but considering mining being allowed in close proximity of her residence in the past, it is anticipated that the impacts would not be unacceptable. The haul road is situated on Mrs. Ross' and Mr. Lustgarten's properties and mining will impose an impact in this regard. Maintaining safe hauling protocol and upgrading of the road regularly will reduce this impact, but agreements with the neighbours should be reached prior to mining. If unreasonable demands are imposed for using the access, the conditions of Section 5 of the MPRDA, guaranteeing access to mining areas should be taken cognisance of. With mitigation the impact is rated of low-moderate significance.

Your involvement

All impacts imposed by the quarry concern would be short term. Should you disagree with any of the above provisional impact ratings, please provide detailed information/assessment on the matter(s) concerned.

Proof of distributing consultation letter via fax:

| | | | | | |
|---------------------------|------------|---------------------|------------|-----------------------------|--------|
| | | Ross | | *** TRANSMISSION REPORT *** | |
| 12/03/2012 12:16 | | Lexmark 5000 Series | | 0413672049 | |
| NO. | DATE | START TIME | SENT TO | SCANNED/SENT | RESULT |
| 1 | 12/03/2012 | 12:14 | 0437420167 | 6/6 | OK |
| Dept Roads + Public Works | | | | | |

| | | | | | |
|------------------|------------|---------------------|------------|-----------------------------|--------|
| | | Ross | | *** TRANSMISSION REPORT *** | |
| 12/03/2012 11:50 | | Lexmark 5000 Series | | 0413672049 | |
| NO. | DATE | START TIME | SENT TO | SCANNED/SENT | RESULT |
| 1 | 12/03/2012 | 11:46 | 0437221788 | 6/6 | OK |
| Land Affairs | | | | | |

| | | | | | |
|------------------|------------|---------------------|------------|-----------------------------|--------|
| | | Ross | | *** TRANSMISSION REPORT *** | |
| 12/03/2012 11:43 | | Lexmark 5000 Series | | 0413672049 | |
| NO. | DATE | START TIME | SENT TO | SCANNED/SENT | RESULT |
| 1 | 12/03/2012 | 11:40 | 0437224840 | 6/6 | OK |
| Buffalocity men | | | | | |

Letter indicating amended response dates:



4 Josephine Ave Mobile: 082 4140 464 Fax: 041-367 2049
Lorraine Office: 041-367 2049 E-mail: stellenryck@telkomsa.net
6070

Interested and Affected Party

13 March 2012

URGENT

INTENTION OF MINING OPERATIONS IN EAST LONDON AREA

Our faxes dated 12 March 2012 regarding the following proposed mining ventures, refer.

| <u>Applicant</u> | <u>Property Description</u> |
|-------------------|---|
| L.J. Hewson | Sand mining on Portion 17 of Farm 1016, East London |
| W.R. Ross | Sand mining on Farm 1090, East London |
| R.J. van den Berg | Sand mining on Portion 41 of Farm 807, East London |

Please note that the last sentence of the 1st paragraph on page 2 should read as follows:

“In order to ensure that your comments are captured in the response report to be submitted to the Department of Mineral Resources, your response on the mining application *per se* is required in writing not later than 09h00 on Monday 19 March 2012. Comments on environmental matters must reach this office not later than Saturday 24 March 2012 and should be informed by the background information to be received in due course”

Your co-operation in this regard is appreciated.

Yours faithfully

A handwritten signature in black ink, appearing to read 'J.A. van As', written in a cursive style.

J.A. van As

STELLENRYCK

Member: J.A. van As: B.Sc (Botany & Zoology), B.Sc Hons (Eco-Physiology), M.Sc (Plant Physiology)

Proof of distribution of Letter with amended reponse dates:

| *** TRANSMISSION REPORT *** | | | | | |
|---|------------|---------------------|------------|--------------|--------|
| 13/03/2012 14:55 | Ross | Lexmark 5000 Series | 0413672049 | | |
| NO. | DATE | START TIME | SENT TO | SCANNED/SENT | RESULT |
| 1 | 13/03/2012 | 14:54 | 0437420167 | V1 | OK |
| Roads + Public Works Response Date regstelling | | | | | |

| Q. | DATE | START TIME | SENT TO | SCANNED/SENT | RESULT |
|---|------------|------------|------------|--------------|--------|
| | 13/03/2012 | 14:47 | 0437224840 | V1 | OK |
| BuffaloCityMan Response date regstelling | | | | | |

| *** TRANSMISSION REPORT *** | | | | | |
|---|------------|---------------------|------------|--------------|--------|
| 13/03/2012 14:51 | Ross | Lexmark 5000 Series | 0413672049 | | |
| NO. | DATE | START TIME | SENT TO | SCANNED/SENT | RESULT |
| 1 | 13/03/2012 | 14:50 | 0437221768 | V1 | OK |
| Land Affairs Response date regstelling | | | | | |

Stellenryck

From: "Stellenryck" <stellenryck@telkomsa.net>
To: <thobilem@buffalocity.gov.za>
Sent: 14 March 2012 09:20 AM
Attach: Municipality 2.pdf
Subject: PROPOSED MINING OPERATION
Dear Sir,

Our faxes dated 12 March and 13 March 2012 regarding the above mentioned refer.

Attached please find the detailed documentation of the proposed mining operation of Mr. Ross for your perusal and response. The documentation of Mr. Hewson and Mrs. van den Berg follows.

Kind regards

Vanessa van As

pp:
J.A. van As
Stellenryck Environmental Solutions
4 Josephine Ave
Lorraine
6070
Tel/Fax: 041 - 367 2049
Cell: 082 414 0464
E-mail: stellenryck@telkomsa.net

----- Original Message -----

From: "Stellenryck" <stellenryck@telkomsa.net>

To: <rosselsa@gmail.com>

Sent: Tuesday, March 13, 2012 2:16 PM

Subject: ATTENTION: MRS. FLORENCE ROSS

> Dear Mrs. Ross,

>

> Please see the attached document for the attention of Mrs. Florence Ross.

>

> Regards

>

> J.A. van As

> Stellenryck Environmental Solutions

> 4 Josephine Ave

> Lorraine 6070

> Tel/Fax: 041 - 367 2049

> Cell: 082 414 0464

> E-mail: stellenryck@telkomsa.net

>

Stellenryck

From: "Stellenryck" <stellenryck@telkomsa.net>

To: <gwen@slcontractors.co.za>

Cc: <slcontractors@telkomsa.net>

Sent: 14 March 2012 09:08 AM

Attach: Lustgarten.pdf

Subject: PROPOSED MINING OPERATION

Good Morning Gwen,

The attached documentation for Mr. Lustgarten's perusal and response please.

Kind regards

Vanessa van As

pp:

J.A. van As

Stellenryck Environmental Solutions

4 Josephine Ave

Lorraine

6070

Tel/Fax: 041 - 367 2049

Cell: 082 414 0464

E-mail: stellenryck@telkomsa.net

Stellenryck

From: "Stellenryck" <stellenryck@telkomsa.net>
To: <cosycomer@geenet.co.za>
Sent: 14 March 2012 09:11 AM
Attach: Cosey Comer Home.pdf
Subject: PROPOSED MINING OPERATION

Dear Madam,

Please see the attached documentation for the Association's perusal and response.

Kind regards

Vanessa van As

pp:
J.A. van As
Stellenryck Environmental Solutions
4 Josephine Ave
Lorraine
6070
Tel/Fax: 041 - 367 2049
Cell: 082 414 0464
E-mail: stellenryck@telkomsa.net



**PUBLIC PARTICIPATION: MINING PERMIT APPLICATION FOR THE
MINING OF SAND ON FARM 1090, KAIZER'S BEACH, EAST LONDON**



PREPARED FOR:

Mr W R Ross

P.O. Box 59

Kidds Beach

5264

March 2012

Tel. & Fax: 041-3672049 · Cell 0824140464 · 4 Josephine Avenue Lorraine 6070

Member: J. A. van As: B.Sc (Botany & Zoology), B.Sc (Hons) (Eco-Physiology), M.Sc (Plant Physiology)



Stellenryck Environmental Solutions

4 Josephine Ave Mobile: 082 4140 464 Fax: 041-367 2049
Lorraine Office: 041-367 2049 E-mail: stellenryck@telkomsa.net
6070

Interested & Affected Parties

13 March 2012

INTENTION TO MINE SAND ON FARM 1090, EAST LONDON

Our recent facsimile regarding the above mining concern refers.

You are hereby informed that Mr. W.R.Ross has appointed Stellenryck Environmental Solutions CC (*SES*) to conduct the Public Participation Process for the above mentioned mining venture. *SES* has already embarked on the process and held a public meeting on 26 November 2012 with abutting residents discussing the mine application and environmental impacts and have noted their comments, mostly general in nature and no objections.

In terms of section 27(5)(b) of the Minerals & Petroleum Resource Development Act 28 of 2002, an applicant for a mining permit must consult with Interested and Affected Parties (I&APs) regarding any proposed mining activity and submit the result of the said consultation to the Department of Mineral Resources (DMR).

Stellenryck submitted the mining permit application to the DMR and the application was accepted by the DMR on 18 February 2012. Acceptance of the application must not be construed as the approval of the project, since the process of approval/refusal that has commenced on the date of acceptance, must still run its course.

This communication therefore serves to inform you about the intention of Mr. Ross to mine 1.5ha of his property on an area that has been totally transformed and that will be developed over the next 2 years. You have been identified as an interested and affected party (I&AP) in the project and the purpose of this letter is therefore to:

- Inform you of the locality of the proposed mining area.
- Give you an opportunity to raise any comments you might have in respect of the proposed mining activities detailed in the attached annexure.
- Give you an opportunity to raise any comments or concerns you might have in respect of the applicant wanting to make use of your access road to cart material to the market.
- Incorporate any valid concerns in the final Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) to be submitted to the DMR in terms of section 39(1) of the said Act. In terms of section 39(4) of the Act the EMP must be approved by the DMR prior to the commencement of any mining or related activities.

Other interested and affected parties that were identified are Mrs F. Ross and Mr S. Lustgarten who were also consulted.

Your involvement

This consultation process is important as it raises your awareness on the nature of the operation and grants you the opportunity to raise any comments you might have on the mining venture. You are therefore requested to submit your comments/observations/concerns in writing by means of completing, as a minimum, the accompanying comment and registration sheet. Should any observation/concern be identified as definite and significant environmental/social impacts, the relevant matter will be investigated, assessed and where necessary, mitigation measures will be developed and captured in the Environmental Impact Assessment (EIA) & Management Plan (EMP) to address any identified impact satisfactorily. In order to ensure that your comments are captured in the response report to be submitted to the Department of Mineral Resources, your response on the mining application *per se* is required in writing not later than 10a.m. on 18 March 2012. Comments on environmental matters must reach this office not later than 28 March 2012.

Way Forward

16. The outcome of this consultation process will be submitted to the DMR for decision making.
17. An EIA & EMP will be submitted to the DMR and other affected Government Departments for evaluation and decision making.
18. If the application is found acceptable by the DMR, a financial guarantee that will cover rehabilitation costs will be submitted to cover costs related to potential environmental disturbances that may be caused by invasive mining activities.

19. If the DMR's decision making process results in approval of the mining venture, a Mining Permit will be granted and the EMP will be approved. You will be notified of the issue of the Mining Permit.
20. Mining activities will then be conducted in accordance with the approved mining programme and EMP.
21. Annual environmental performance assessments will be conducted and the outcome submitted to the DMR for evaluation and any appropriate decision making.
22. On completion of mining activities, an application for closure and final environmental performance assessment, which will include your comments on the status of mining areas, will be lodged with the DMR for decision making and the issue of a closure certificate.

To provide additional information on the project please refer to the attached background information document on the proposed project. Please note it is not intended to provide all details on the project or to replace the EIA/EMP. Should you wish to discuss any aspect of the application please do not hesitate to contact us.

Should you wish the applicant to consult any other party during the EMP process, please provide *SES* with the relevant contact details.

Yours sincerely



J. A. van As

STELLENRYCK

Member: J. A. van As: B.Sc (Botany & Zoology), B.Sc Hons (Eco-Physiology), M.Sc (Plant Physiology)

**PUBLIC PARTICIPATION REPLY FORM FOR MINING PERMIT APPLICATION:
FARM 1090, EAST LONDON**

Please return by fax or registered post to:

Fax: 041-3672049

J. A. van As

Stellenryck Environmental Solutions

Postal address:

Stellenryck Environmental Solutions

4 Josephine Avenue

Lorraine

6070

Contact details of Interested & Affected Party

Name:

Property/Organization

Postal address

Telephone Fax No.....

Mobile E-mail.....

Please list your comments on the project (Should you require more space use additional page):

1.....

.....

2.....

.....

3.....

.....

P O Box 59
Kidds Beach
5264

Tel: 043 781 1898

Cell: 083 283 7118

PARTICULARS OF LANDOWNER

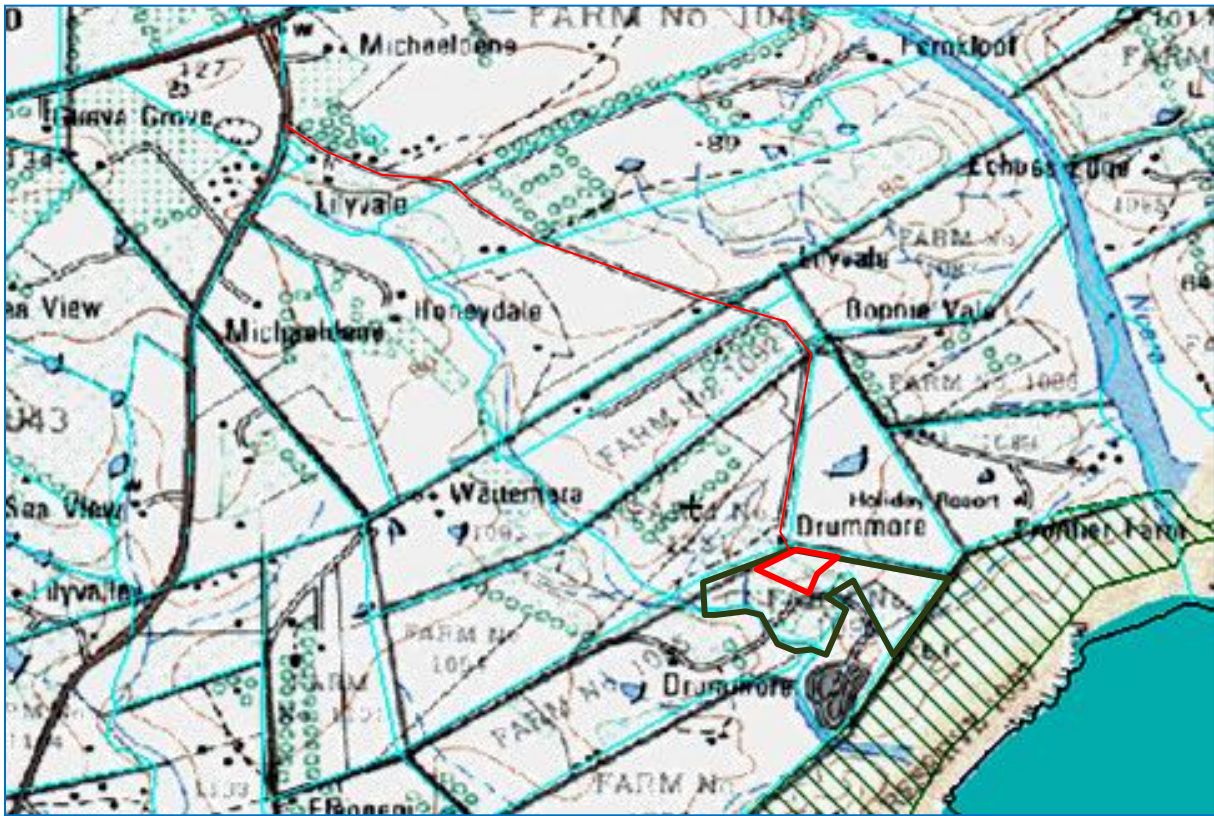
Mr W R Ross
P O Box 59
Kidds Beach
5264

Tel: 043 781 1898

Cell: 083 283 7118

PLAN SHOWING THE PROPERTY AND MINING AREA CONCERNED.

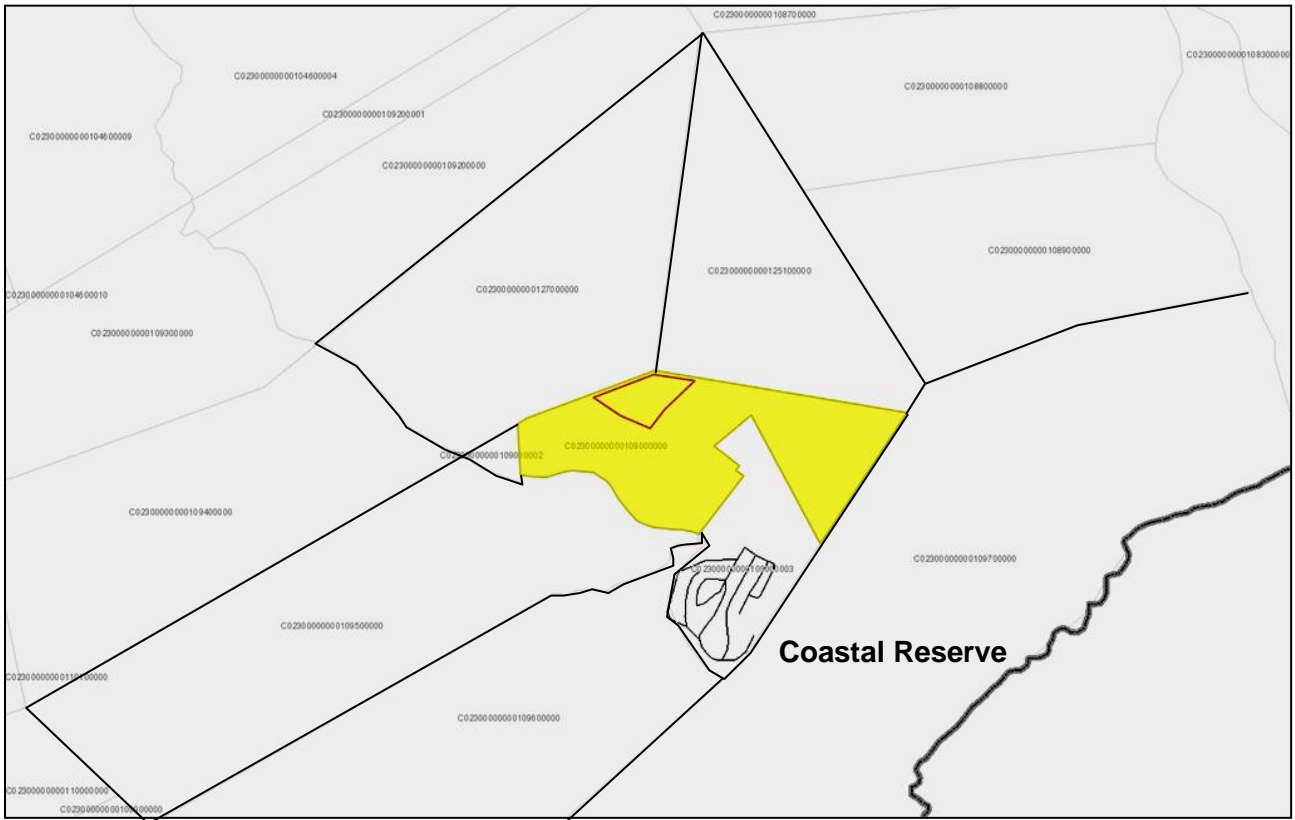
The proposed quarry is approximately 33 km south west from East London and is on private property. The R72 road lies about 4 km north from the mining site. Access to the Cosy Corner development is via the Kayser's Beach turn off and private farm road but due to its poor surface status, it will not be used for hauling purposes. It is intended that hauling be conducted via the servitude road located to the north-west and depicted on plan. Maintenance of this road will be the responsibility of the land owner and applicant.



Aerial view of property concerned and access road



Mine area in relation to property boundaries



EXTENT OF MINING AREA

The mining site is 1,5 ha in extent.

DEPTH OF MINE

Between 1 & 2m.

LIFE OF MINE

Two years with possibility to renew permit three times for one year each if market demand or operation challenges prevent the concern to operate at maximum capacity.

PROJECT DESCRIPTION

The proposed quarry will be a private concern licensed by the Department of Mineral Resources. A transformed section of the property will be turned into a low-key sand mining operation within the demarcated area depicted on plan.

PICTORIAL RECORD



Abutting property and residence of Mrs. Ross and view of the site



Cosy Corner development visible from the site

CONSTRUCTION PHASE

No office infrastructure or hydrocarbon storage facilities will be constructed on the property. Waste disposal will be by means of strategically positioned waste bins that will be emptied at a regular basis. No Eskom and Telkom service points are required. No accommodation for personnel is required and the workforce will commute to the site on a daily basis. There are no toilet facilities available onsite and it will be provided in the form of chemical toilet. No maintenance or salvage yard will be established since all vehicles will be maintained at workshop of the contractor. If required a workshop at the farm could facilitate minor services and repairs.

The only construction activities involved will be the removal of the topsoil and vegetation, which will be stored ahead of each phase; the clearing of vegetation to construct temporary haul roads as depicted on plan. The temporary haul roads which will run north and east of the site and the eastern haul road will be lengthened as mining progresses towards the next phases. During the life of the mine haul road will be protected against erosion and rehabilitated at closure of the mine.

Noise nuisance and dust pollution will be applicable, especially in relation to Mrs Ross who is the immediate abutting landowner. Topsoil of phases 1, 2 & 4 shall be seeded, irrigated and covered with shade cloth to facilitate grass establishment and reduce windblown dust.

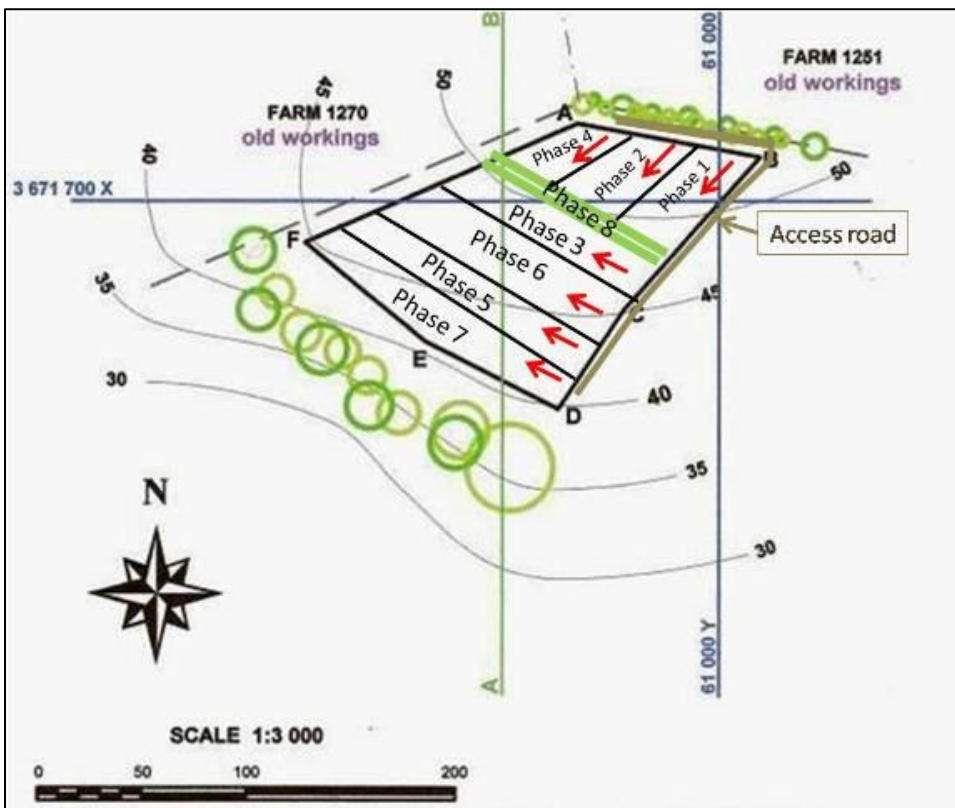
QUARRY DEVELOPMENT

Mining methodology

The quarry will be developed using the conventional open cast slot mining method. An excavator will be used for this purpose. Mining will be done in seven (7) phases as depicted on the mine plan. Approximately 25000 cubic meters of sand will be extracted over a period of 22 months at an average production rate of approximately 1300 cubic meters per month.

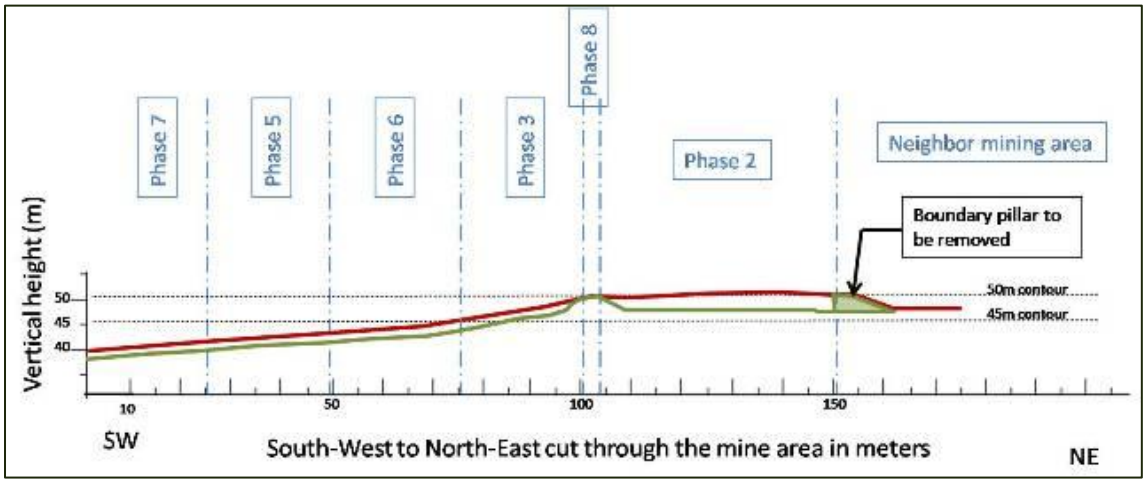
The mine area will be divided into two areas, the flattish crest area consisting of phases 1, 2 & 4 and the slope area, consisting of phases 3, 5, 6 & 7. Phase 8 will remain as a 3m wide pillar separating the two sections. The purpose of the pillar is to control storm water runoff and prevent erosion on the slope area.

A portion of the existing quarry floor directly behind the production face will be used for establishing a small stockpile. Once phase 1 is mined out, mining will progress to ensuing phases in similar slots.



Mine Development plan

Before mining of phase 2 commences, 2-2,5m high shade cloth screens must be erected on the north-western perimeter of this phase to act as a dust and sand trap. To mitigate the impact of dust to the north-west phase 4 will only be developed after phases 1 & 2 were semi-rehabilitated. Mining and rehabilitation of the inclined area will be done by mining and rehabilitating alternative slots, as depicted on plan to curb any erosion of the slope.



Cross section of the profile of the area before and after mining. Note: The red line represents the current profile; the green line represents the profile after mining.

Phase 8 will not be mined and will serve as contour to divert runoff away from slope below. If instability of rehabilitated areas require, the boundaries between phases 3 & 6 and 5 & 7 will be used to create contours to direct storm water to the south-east of the site. For this purpose cuts through the profiled face will be required.

Water for dust suppression and re-vegetation process will be supplied by means of a water tanker to be filled from the boreholes on the farm. Drinking water would be kept in a clean PVC container and topped up on daily basis.

The proposed operation would not be continuous due to the low demand envisage and production rate should generally not exceed 70 cubic meters per day, which will result in 7 loads per day, more or less one every hour. Working hours will be from 7.30 am to 5 pm five days a week.

Water for dust suppression and re-vegetation process will be supplied by the applicant from boreholes on the farm.

PROVISIONAL ENVIRONMENTAL IMPACT ASSESSMENT

Public participation

The following persons & entities were consulted:

- Abutting landowner, Mr S. Lustgarten;
- Cosy Corner Home Owners Association;
- The Department of Mineral Resources will consult all relevant Government Departments, for example Environmental Affairs, Water Affairs, Agriculture, Forestry

Topography

Mining the site will lower the surface topography between 1-2m, depending on the depth of available material, and should follow the natural contours of the area. Mining will therefore only cause a shallow depression in the landscape. The crest area will drain via percolation through the abutting sand reserves whilst the area on the slope will be partially free draining. Contours will be used to control runoff and prevent erosion. Production faces will be sloped to 1:2-1:3 gradients to blend the mining area with the surrounds.

Removing material will alter the topography of the site permanently, but considering the 1) small area to be affected, 2) the limited depth of the excavation and 3) the integration of the site with the surrounds, the impact is rated of low significance.

Soils

Soils of this area are marginally due to its poor fertility and structure. Soils will be disturbed when cleared and will affect their structure and fertility during the 3-6 months' storage period. All topsoil will be conserved during operations. During the rehabilitation phase the topsoil will be reintroduced on the quarry floor and upgraded with manure and inorganic fertilizer to fast track establishment of vegetation. With mitigation the impact is rated of low significance.

Erosion

Soil in the mining area is sandy and has good draining capacity and will render the soil to be less erodible. However, the steep incline on the bottom section of the mining area will most

definitely be subject to erosion after disturbance because of the slope and the fact that the draining capacity will be large removed by mining.

Erosion is therefore not regarded a significant factor in the crest area but is considered a moderate-high risk on the slope area involved. Therefore, erosion control measures will be implemented throughout the lifespan of the mine. Diminishing sand reserves towards the south-west could prevent mining of a portion of this area.

Land use & Land capability

Bush clearing occurred many years ago to establish a grazing unit and is used for this purpose. The grass cover disposes of a low-moderate carrying capacity and the slope area hosts a significant weed cover. After the sand deposit is removed, an improved pasture unit would be established and weeds will be removed. A minor impact on land use and land capability would be imposed. The proposed mining will not have any impact on the land capability of abutting properties.

The proposed site is located close to Mrs. Ross' residence and is visible from a few double storey residences within the Cosy Corner development and will impact on the recreational use of these properties. However, mining on the property of Mrs Ross occurred in the past and seemingly had no significant impact on her or Cosy Corner residences. An aggressive, concurrent and phased rehabilitation process will be followed to ensure effective mitigation of the mentioned impact. The impact is rated of low significance if environmental impacts associated with the development are addressed effectively and timeously.

Flora

Originally the site hosted Albany Coastal Belt vegetation, but was cleared for pasture purposes similar to the abutting land. Albany Coastal Belt currently disposes of a 'least threatened' conservation status. From a vegetation perspective the area represents an insignificant vegetation parcel. Currently the site hosts a *Cynodon-Stenotaphrum* cover with some fynbos elements and *Cirsium vulgare*. The slope section disposes mostly of a grass and weed cover. Clearing the site and establishing pasture will therefore be a benefit to the applicant. With reinstatement of topsoil and supporting seeding programme, the grassland will be reinstated over time.

Fauna

During the two site visits no faunal species of value was observed. The secondary grass cover does not provide much habitat for nesting sites and protection for wild animals other than perhaps for small rodents, a few reptiles and insects. Since the area is still subject to grazing cycles and human interference, especially considering the presence of the residential development and abutting mining and farm practices, the site poses no significant faunal niche. However, it is considered a faunal corridor and larger animals, taking refuge in the Coastal Reserve may roam the area during the night. Since the site is small and will be fully rehabilitated no permanent or significant impact will be imposed on species diversity, forage patterns or migration.

Sensitive sites

Mining will be done in an already disturbed environment, thus no sensitive areas on site has been identified. The minor stream to the south is rated a sensitive environment but will be protected by adequate buffer zones. The Coastal Reserve is a formally protected area but the distance to the Reserve precludes any impact on it, especially considering the housing development being located in-between the proposed mining site and Reserve. The Christmas Rock-Gxulu River Mouth MPA is located offshore of the Coastal Reserve and will obviously not be affected. The wider area is rated a CBA1 terrestrial area which requires that developments in this area do not impact on natural land parcels, drainage lines, the Coastal Reserve or MPA area. The proposed development would not impact on any of the mentioned areas. The site is located distant to any aquatic CBA 1 & 2 areas.

Surface water

The study area is drained by a small stream approximately 130m to the west km away from the site, which is only about 1km long and is better known to the local people as “Ross’ Creek”, which empties in a minor estuary.

Uncontrolled runoff from the mine area could result in an increase in TSS of the stream with associated smothering of vegetation. Runoff will be mostly contained in the excavation and where necessary directed with contours to grasslands south-east of the site. If runoff is controlled effectively and disturbed areas vegetated concurrently with mining, the impact of mining on surface water quality is rated of low significance.

Groundwater

Mining will be restricted to a depth of 1-1.5m and will follow the natural contours of the site, thus no ground water source will be penetrated or exposed during mining. Depth of groundwater located within the sandstones exceeds 30m. The impact can be rated as insignificant.

Air Quality

Noise

The north-western mine boundary borders is within 50m from Mrs Ross' residence thus for the duration of the life of the mine, she will be subjected to noise generated by the excavator and trucks. It is expected that the noise levels at the mine boundary and thus the neighbour, would be between 60-50 decibels during the day when operating in phase 4. Mining within the other phases, especially on the slope will impose a lesser impact. The impact is rated low-moderate when mining on the crest of the dune and low when mining on the slope. This impact would be unavoidable but since mining was previously allowed within very close distance to the west and east, it is anticipated that the landowner did not experience it an unacceptable impact. To accommodate Mrs. Ross, no work will be conducted over weekends, religious holidays and will be restricted to normal working hours.

The Cosy Corner development is 400m away and topographical screening will preclude any significant impact on its residents

Dust

Potential dust impacts related to the quarry development will be the most significant impact of the proposed quarry. However, the fact that the only person that could be affected is Mrs. Ross, reduces the significances of the impact. In addition, the sand reserves generally dispose of low levels of silt and clay and it would mainly be the topsoil that will pose a dust nuisance. On the other hand sand will be generally fine and wind blasting could be expected

when south-easterly winds prevail. With no mitigation measures in place, the impact could be moderate to high during windy periods.

The mentioned impacts would be mitigated by:

8. Only develop phases 1-2 on the crest before rehabilitation commences. Phase 4 will only be developed once phases 1 & 2 have been stabilized.
9. Shade cloth screens 2-2,5m high shall be established on the north-western perimeter of phases 1 & 2 when developed to act as dust and sand screens and repositioned when mining progresses. It must be maintained until the top, flat section has been rehabilitated.
10. During windy periods affected areas will be irrigated.
11. Topsoil piles shall be covered with shade cloth.
12. Disturbed areas shall be kept as small as possible and grassed concurrently with mining.
13. Mrs. Ross to receive some compensation for having mining in such close proximity to her residence.
14. Truck movement every 45-60 minutes is anticipated and since dust generation is also determined by hauling speed it must be reduced to below 30km/h within 100m from Mrs. Ross' residence.

Due to the distance involved and being mostly located outside the major wind paths, Cosy Corner Residence should not be subject to any significant dust impacts.

Archaeological findings

The site was surveyed and no findings were observed but the site will be subject to a further survey by a specialist.

Traffic

The gravel access road to Mrs. Ross' property will be used as haul road since the access road to Cosy Corner disposes of a sub-standard tar surface and will not be able to accommodate heavy traffic.

Road integrity: Access road

Access to the site from the Lillyvale Road will be via a gravel servitude road across Mr. Lustgarten's farm. The road is not constructed to carry heavy vehicles and will require

grading and upgrading of the wearing course from time to time. The road will be protected against erosion by means of storm water drains. The impact on the integrity of the road is deemed of low-moderate significance when the necessary maintenance is provided.

Road integrity: Lillyvale, Kaizers Beach & R72 roads

The Lillyvale Road is of average to poor standard and is also used by two other mining concerns and it will experience an additional impact on structural integrity and applicant will have to contribute to maintenance. The impact on the road is deemed to be of moderate significance. The Kaizer's Beach Road is of average standard but experiences edge breaking caused by heavy vehicle traffic from farms and other mines and will experience an additional impact on structural integrity. The impact is rated of low-moderate significance. The R72 is in good condition but considering that this road is purposed to maintain heavy traffic flow an impact of low significance is anticipated. The limited increase in traffic volume added to the R72 is deemed insignificant but the Lillyvale & Kaizers Beach road will experience a moderate increase in heavy vehicle traffic.

Line of sight at all accesses is reasonable and residents are used to mining vehicles using the roads concerned. The upgrading and maintenance of all three these roads rest solely with the District Road Engineer (DRE) and the necessary consultation must be established with the Department of Roads and Transport with regards to increased maintenance of roads. If required to a contribution must be made to maintenance of roads concerned.

Road safety

Heavy trucks could result in increased safety risks for local residents using the roads involved. Truck drivers will be bound by a safety code and any transgressions will be severely punished. Appropriate heavy vehicle signage will be erected along the Lillyvale and Kaizer's Beach Roads and at the access with R72 as per the specifications of the District Roads Engineer. Considering the low traffic density on the gravel roads the transport impact is rated of low significance.

Visual impact

The study area is bordered to the north-west by Mrs. Ross' farm house whilst the remaining surrounding area is uninhabited for at least 400m. Mrs. Ross will experience direct visual impacts. This impact will be mitigated by the establishment of shade cloth screens on the north-western perimeter of individual sites. The screens would, however, cut off pleasant views to the south-east. The site is generally not visible from Cosy Corner residences, except for a few double-storey residences. Distance to the site will mitigate the impact but if necessary, screens could be established on the south-eastern perimeter of each phase. The site will, however, not be visible to any public road user.

Considering that only a small portion (1.5Ha) will be disturbed and with a proper re-vegetation approach the visual impact could be successfully mitigated over the short term. The newly established depression, following the natural incline of the topography, will be readily absorbed in the landscape.

In conclusion, the all-over visual impact can be rated low-moderate over the short term.

Social Impacts

The establishment of the concern will have no impact on surrounding agricultural activities. Mrs. Ross will experience dust and noise impacts, mostly when adverse climatic conditions prevail. It will affect the rural ambiance and character of her property but considering mining being allowed in close proximity of her residence in the past, it is anticipated that the impacts would not be unacceptable. The haul road is situated on Mrs. Ross' and Mr. Lustgarten's properties and mining will impose an impact in this regard. Maintaining safe hauling protocol and upgrading of the road regularly will reduce this impact, but agreements with the neighbours should be reached prior to mining. If unreasonable demands are imposed for using the access, the conditions of Section 5 of the MPRDA, guaranteeing access to mining areas should be taken cognisance of. With mitigation the impact is rated of low-moderate significance.

Your involvement

All impacts imposed by the quarry concern would be short term. Should you disagree with any of the above provisional impact ratings, please provide detailed information/assessment on the matter(s) concerned.

Proof of distributing above consultation letter via registered post:

List of REGISTERED LETTERS
Lys van GEREGISTREERDE BRIEWE
 (with an insurance option/met 'n versekeringsopsie)
Full tracking and tracing/Volledige volg en spoor

W. R. ROSS



Name and address of sender:
 Naam en adres van afsender: **Stellenryck Environmental Solutions cc**
 CC No.: 2006/144543/23
 4 Josephine Avenue
 Lorraine 6070
 Tel./Fax: 041 367 2049

Enquiries/Navrae
 Toll-free number
 Tolvry nommer
0800 111 502

| No | Name and address of addressee Naam en adres van geadresseerde | Insured amount Versekerde bedrag | Insurance fee Versekeringsgeld | Postage Posgeld | Service fee Diensgeld | Affix Track and Trace customer copy Plak Volg-en-Spoor-kliëntskrif |
|----|--|-------------------------------------|-----------------------------------|--------------------|--------------------------|--|
| 1 | Mr. S. Lustgarten, PO Box 3150, Cambridge 5206 | | | | | REGISTERED LETTER (with a guarantee) Stellenryck 0800 111 502 www.epso.co.za RD 734 821 809 ZA CUSTOMER COPY 301028R |
| 2 | Dept. Rural Development & Land Reform PO Box 1958, East London 5205 | | | | | REGISTERED LETTER (with a guarantee) Stellenryck 0800 111 502 www.epso.co.za RD 734 822 804 ZA CUSTOMER COPY 301028R |
| 3 | Buffalo City Municipality, PO Box 134, East London 5200 | | | | | REGISTERED LETTER (with a guarantee) Stellenryck 0800 111 502 www.epso.co.za RD 734 822 089 ZA CUSTOMER COPY 301028R |
| 4 | Dept. Roads & Public Works, P/Bag X13004, Cambridge 5247 | | | | | REGISTERED LETTER (with a guarantee) Stellenryck 0800 111 502 www.epso.co.za RD 734 822 781 ZA CUSTOMER COPY 301028R |
| 5 | Mrs. F. Ross, P.O. Box 5257, Greenfields, 5208 | | | | | REGISTERED LETTER (with a guarantee) Stellenryck 0800 111 502 www.epso.co.za RD 734 822 061 ZA CUSTOMER COPY 301028R |
| 6 | | | | | | |
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| 8 | | | | | | |
| 9 | | | | | | |
| 10 | | | | | | |

Number of letters posted 5 Total
 Getal briewe gepos 5 Totaal R R R R

Signature of client
 Handtekening van kliënt *[Signature]*
 Signature of accepting officer
 Handtekening van aanneembeampte *[Signature]*



The value of the contents of these letters is as indicated and compensation is not payable for a letter received unconditionally. Compensation is limited to R100,00. No compensation is payable without documentary proof. Optional insurance of up to R200,00 is available and applies to domestic registered letters only.
 Die waarde van die inhoud van hierdie briewe is soos aangedui en vergoeding sal nie betaal word vir 'n brief wat sonder voorbehoud ontvang word nie. Vergoeding is beperk tot R100,00. Geen vergoeding is sonder dokumentêre bewys betaalbaar nie. Opsionele versekering van tot R2 000,00 is beskikbaar en is slegs op binnelandse geregistreerde briewe van toepassing.

Final letter distributed to Mrs. F. Ross by e-mail:

Stellenryck

From: "Stellenryck" <stellenryck@telkomsa.net>
To: <rosselsa@gmail.com>
Sent: 14 March 2012 09:15 AM
Attach: Florence Ross.pdf
Subject: FOR ATTENTION: MRS. FLORENCE ROSS
Dear Mrs. Ross,

My previous e-mail refers.

Attached the detailed documentation for Mrs. F. Ross' perusal and response please.

Kind regards

Vanessa van As

pp:
J.A. van As
Stellenryck Environmental Solutions
4 Josephine Ave
Lorraine
6070
Tel/Fax: 041 - 367 2049
Cell: 082 414 0464
E-mail: stellenryck@telkomsa.net

Proof that e-mails were received and read:

Stellenryck

From: "Gwen Lustgarten" <gwen@slcontractors.co.za>
To: "Stellenryck" <stellenryck@telkomsa.net>
Sent: 14 March 2012 01:15 PM
Attach: ATT00341.txt
Subject: Read: PROPOSED MINING OPERATION
Your message

To: gwen@slcontractors.co.za
Cc: slcontractors@telkomsa.net
Subject: PROPOSED MINING OPERATION
Sent: 14-Mar-12 09:08

was read on 14-Mar-12 13:08.

Stellenryck

From: "cosycorner" <cosycorner@geenet.co.za>
To: "Stellenryck" <stellenryck@telkomsa.net>
Sent: 14 March 2012 10:50 AM
Subject: Re: PROPOSED MINING OPERATION
Hi Vanessa

documentation received - I have printed it and will hand to Mr Jack Smith who is one of Cosy Corner's directors

have a great day - Elaine

----- Original Message -----

From: Stellenryck
To: cosycorner@geenet.co.za
Sent: Wednesday, March 14, 2012 9:11 AM
Subject: PROPOSED MINING OPERATION

Dear Madam,

Please see the attached documentation for the Association's perusal and response.

Kind regards

Vanessa van As

pp:
J.A. van As
Stellenryck Environmental Solutions
4 Josephine Ave
Lorraine
6070
Tel/Fax: 041 - 367 2049
Cell: 082 414 0464
E-mail: stellenryck@telkomsa.net

Stellenryck

From: "SL Contractors" <slcontractors@telkomsa.net>
To: "Stellenryck" <stellenryck@telkomsa.net>
Sent: 14 March 2012 09:16 AM
Attach: ATT00218.txd
Subject: Read: PROPOSED MINING OPERATION

Your message

To: gwen@slcontractors.co.za
Cc: slcontractors@telkomsa.net
Subject: PROPOSED MINING OPERATION
Sent: 2012/03/14 09:08 AM

was read on 2012/03/14 09:16 AM.

Stellenryck

From: "Alan McIntyre" <AlanM@buffalocity.gov.za>

To: "Stellenryck" <stellenryck@telkomsa.net>

Sent: 16 March 2012 12:30 PM

Attach: ATT00079.txt

Subject: Read: PROPOSED MINING OPERATION

Your message was read on Friday, March 16, 2012 11:37:00 AM (GMT+02:00) Harare, Pretoria.

PUBLIC PARTICIPATION REPLY FORM FOR MINING PERMIT APPLICATION:
FARM 1090, EAST LONDON

Please return by fax or registered post to:

Fax: 041-3672049
J. A. van As
Stellenryck Environmental Solutions

Postal address:
Stellenryck Environmental Solutions
4 Josephine Avenue
Lorraine
6070

Contact details of Interested & Affected Party

Name: SELWYN JEFFREY LUYGHEMEN.
Property/Organization: DRUMMO NO 1251.
Postal address: P.O. Box 459 KID'S BENCH 5264.
Telephone: 043 745 2602 Fax No: 086 512 5090
Mobile: 083 500 2975 E-mail: gw@skat.co.za.

Please list your comments on the project (Should you require more space use additional page):

- 1.....
- 2.....
- 3.....
- 4.....
- 5.....

or

I have no comments on the proposed W. R Ross mining venture.

I, SELWYN JEFFREY LUYGHEMEN confirm that I have received the Public Consultation Notice from Mr. W. R Ross regarding sand mining on the Farm 1090, East London.


Signature

4610035022007
ID Number

15 March 2012.
Date

Name of any other person whom you think should be consulted
Name and Surname.....
Farm Name and Portion.....
Telephone..... Fax.....
Address.....

**PUBLIC PARTICIPATION REPLY FORM FOR MINING PERMIT APPLICATION:
FARM 1090, EAST LONDON**

Please return by fax or registered post to:

Fax: 041-3672049

J. A. van As
Stellenryck Environmental Solutions

Postal address:

Stellenryck Environmental Solutions
4 Josephine Avenue
Lorraine
6070

Contact details of Interested & Affected Party

Name: Mrs. F. Ross

Property/Organization

Postal address P.O. Box 5257, Creunfields, 5208

Telephone Fax No.....

Mobile 083 660 8914 E-mail rosselsa@gmail.com

Please list your comments on the project (Should you require more space use additional page):

- 1. I will not permit access to and from the mining site through my farm
- 2. Due to the close proximity of my house I will require adequate dust settling measures to be in place
- 3. Other than points 1 and 2 I have no objection to Mr. Ross mining on his farm

4.

5.

.....

or

~~I have no comments on the proposed W. R. Ross mining venture.~~

I, _____ confirm that I have received the Public Consultation Notice from Mr. W. R. Ross regarding sand mining on the Farm 1090, East London.

F. Ross
Signature

.....
ID Number

17-3-2012
Date

Name of any other person whom you think should be consulted

Name and Surname.....

Farm Name and Portion.....

Telephone..... Fax.....

Address.....

Buffalo City Metropolitan Municipality
East London | Bhisho | King William's Town
Province of the Eastern Cape
South Africa

Website: www.buffalocity.gov.za



**BUFFALO CITY
METROPOLITAN MUNICIPALITY**

Office of the General Manager: Health Services
PO Box 673, East London, 5200
City Health Department, Beaconsfield Rd.
East London, 5201

Tel: 043 705 2904/2901/2974
Fax: 043 7224840

DIRECTORATE OF COMMUNITY SERVICES

| | | | | |
|---|-----------|------------------------------|--|--|
| Our ref.: Ifayile yethu: Ons Verw.: | 17/1/3/st | Enq.: Imibuzo: Navrae: | Mr McIntyre 043 – 705 2928/01 | Your ref.: Ifayile yakho: U Verw.: |
|---|-----------|------------------------------|--|--|

FOR EMAILING

16 March 2012

J. A. van As
Stellenryck Environmental Solutions

Dear Sir / Madam

INTENTION TO MINE SAND ON FARM 1090, EAST LONDON

Your letter dated 7 March 2012 in the above regard refers.

The following requirements of the City Health Department apply to the abovementioned mining permit application submitted by Stellenryck Environmental Solutions to the Department of Mineral Resources.

1. No disturbing noise or noise nuisance may be produced on the site in terms of sections 4 and 5 of the Buffalo City Municipality Noise By-law L.A. Notice 122 date 22 October 2010.
2. Dust emanating from the site may not be of such quantities and concentrations that give rise to conditions as stipulated in terms of section 3 of the Draft National Dust Control Regulations G.N. 309 of 2011 dated 27 May 2011.
3. Concentrations of PM₁₀ particulate matter emanating from the site may not exceed the standard stipulated in terms of section 3.3 of the National Ambient Air Quality Standards G.N. 1210 dated 24 December 2009.
4. Concentrations of PM_{2.5} particulate matter emanating from the site may not exceed the standard stipulated in terms of section 3 of the Proposed National Ambient Air Quality Standard of Aerodynamic Diameter of less than 2.5 Micron Metres G.N. 515 of 2011 dated 5 August 2011.
5. The Environmental Impact Assessment and Environmental Management Plan required by the Department of Mineral Resources must include the impact / management of noise and dust relative to the proposed sand mining activities, taking into consideration the limitations imposed in terms of items 1, 2, 3 and 4 of this letter.
6. The Environmental Impact Assessment and Environmental Management Plan must be forwarded to the City Health Department for comments.

7. Waste removal services for the mining operation, and toilet facilities for staff, must be provided to the satisfaction of the City Health Department.

It should be noted that section 7 of the Buffalo City Municipality Noise By-law L.A. Notice 122 dated 22 October 2010 does permit applications to the municipality for exemptions to the provisions of the by-law. This is of significance due to the rural location of the proposed mining sites. The municipality would consider applications based on their respective circumstances including the proximity of neighbours. The municipality would impose conditions for such exemptions and stipulate the period for which exemptions would be granted.



L.A. FALATI

MANAGER: ENVIRONMENTAL HEALTH

Sand Mining Farm 1090 /AMc

**PUBLIC PARTICIPATION REPLY FORM FOR MINING PERMIT APPLICATION:
FARM 1090, EAST LONDON**

Please return by fax or registered post to:

Fax: 041-3672049
J. A. van As
Stellenryck Environmental Solutions

Postal address:
Stellenryck Environmental Solutions
4 Josephine Avenue
Lorraine
6070

Contact details of Interested & Affected Party

Name: Alan McIntyre for City Health Dept., BCMM.
Property/Organization: City Health Dept., Buffalo City Metropolitan Municipality
Postal address: P.O. Box 673, East London 5200
Telephone: 043-7052901 Fax No: 043-7221840
Mobile: E-mail: alanm@buffalocity.gov.za

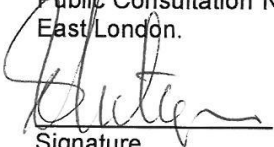
Please list your comments on the project (Should you require more space use additional page):

1. The requirements in respect of the application are detailed in the attached letter dated 16 March 2012 from the City Health Department, Directorate of Community Services, Buffalo City Metropolitan Municipality
- 2.
- 3.
- 4.
- 5.

or

I have no comments on the proposed W. R Ross mining venture.

I, _____ confirm that I have received the Public Consultation Notice from Mr. W. R. Ross regarding sand mining on the Farm 1090, East London.

Signature:  ID Number: 5205045111085 Date: 16/3/2012

Name of any other person whom you think should be consulted
Name and Surname.....
Farm Name and Portion.....
Telephone..... Fax.....
Address.....

PUBLIC PARTICIPATION REPLY FORM FOR MINING PERMIT APPLICATION:
FARM 1090, EAST LONDON

Please return by fax or registered post to:

Fax: 041-3672049
J. A. van As
Stellenryck Environmental Solutions

Postal address:
Stellenryck Environmental Solutions
4 Josephine Avenue
Lorraine
6070

Contact details of Interested & Affected Party

Name: P.A DEL GRANDE
Property/Organization: COSI CORNER
Postal address: 5 OAK PLACE PARADISE VALLEY PINXTOWN 3610
Telephone: 031-7081980 Fax No: 031-
Mobile: 0795168904 E-mail: PADELGRANDE@gmail.com

Please list your comments on the project (Should you require more space use additional page):

1. I object to the mining due to the impact on the NATURE & wild life within the AREA (CONSTANT)
2. I object to the mining due to the increase heavy TRAFFIC to the MAIN ROAD from the Highway.
3. I object to the mining due to the possible effect of the value to our property.

4.....
.....
5.....
.....

or

I have no comments on the proposed W. R Ross mining venture.

I, Pier Antonio Del Grande confirm that I have received the Public Consultation Notice from Mr. W. R. Ross regarding sand mining on the Farm 1090, East London.

[Signature]
Signature

7107195245085
ID Number

11/03/2012
Date

Name of any other person whom you think should be consulted
Name and Surname.....
Farm Name and Portion.....
Telephone..... Fax.....
Address.....

**PUBLIC PARTICIPATION REPLY FORM FOR MINING PERMIT APPLICATION:
FARM 1090, EAST LONDON**

Please return by fax or registered post to:

Fax: 041-3672049

J. A. van As
Stellenryck Environmental Solutions

Postal address:

Stellenryck Environmental Solutions
4 Josephine Avenue
Lorraine
6070

Contact details of Interested & Affected Party

Name:

Niki Del Grande

Property/Organization

Cosy Corner

Postal address

Telephone

031 275 4545

Fax No.

Mobile

082 832 4473

E-mail

nikidg@vectorlog.com

Please list your comments on the project (Should you require more space use additional page):

1. I object to the planned mining proposal and application for a mining permit for the following
 2. reasons: 1. Noise will disrupt the peaceful environment.
 3. 2. Air Quality will be compromised and I already have a husband that suffers with
 4. asthma, and the dust will have a significant negative impact on our environment and health.
 5. 3. Visual Impact of the mining concern will be upsetting and negatively impacting.
- or

I have no comments on the proposed W. R. Ross mining venture.

I, _____ confirm that I have received the Public Consultation Notice from Mr. W. R. Ross regarding sand mining on the Farm 1090, East London.

Ndelgrande
Signature

7208060039080
ID Number

19/03/2012
Date

Name of any other person whom you think should be consulted

Name and Surname.....

Farm Name and Portion.....

Telephone..... Fax.....

Address.....

PUBLIC PARTICIPATION REPLY FORM FOR MINING PERMIT APPLICATION:
FARM 1090, EAST LONDON

Page 1 of 2

Please return by fax or registered post to:

Fax: 041-3672049
J. A. van As
Stellenryck Environmental Solutions

Postal address:
Stellenryck Environmental Solutions
4 Josephine Avenue
Lorraine
6070

Contact details of Interested & Affected Party

Name: Ian L Whitfield
Property/Organization: Plot 188 Cosy Corner
Postal address: P.O. Box 3664 Edenburg 1618
Telephone: 011-4536261 Fax No: 0866452793
Mobile: 082 4419320 E-mail: Ian.Whitfield@recober.com

reylon

Please list your comments on the project (Should you require more space use additional page):

- objection 1. The Existing view is farmland/pastoral, this will be negatively impacted
 - objection 2. Soil Wash off into Russ's Creek is a Possibility during heavy Rain and can't be fixed
 - objection 3. Noise and Dust next door to a Resident area that was marketed as a Quiet Sea Side Resort.
 - objection 4. Possible + very likely increase in crime with increased labour brought in
 - objection 5. There are other Sand Mines in the Area and no additional Mine is Needed.
- See typed copy attached

I have no comments on the proposed W. R Ross mining venture.

I, Ian L Whitfield confirm that I have ^{Not} received the Public Consultation Notice from Mr. W. R. Ross regarding sand mining on the Farm 1090, East London.

Ian Whitfield
Signature

5409235141080
ID Number

20/3/2012
Date

Name of any other person whom you think should be consulted
Name and Surname.....
Farm Name and Portion.....
Telephone..... Fax.....
Address.....

Page 2 of 2

TO: STELLENRYCK ENVIROMENTAL SOLUTIONS

Attention: J.A. van As

FAX 041-3672049

Postal Address

Stellentyck Environmental Solutions

4 Josephine Avenue

Lorraine

6070

OBJECTION TO SAND MINING OPERATION on Farm 1090 East London

I wish to make my Objection plain and Clear and make sure there is no misunderstanding due to misinterpretations of handwriting on the Public Participation Reply Form for a Mining Permit

Objection 1

The existing view from my house is farmland / pastoral and this will probably be negatively impacted.

Objection 2

Soil wash off during abnormal rain is a remote possibility and once done will probably be irreversible.

Objection 3

Cosy Corner was marketed as a quiet seaside residential area and I object to any potential noise and dust.

Objection 4

Possible and very likely increase in crime in the village of Cosy Corner. This will result in increased security costs.

Objection 5

Possible increase of poaching in the adjacent Nature Reserve.

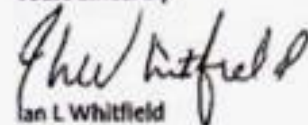
Objection 6

From Aerial Photos provided it shows existing Sand Mine on adjacent property that has not been rehabilitated properly, we don't want to add to this however noble the intention.

Objection 7

There are existing sand mines in the area and there is no need for more.

Yours Sincerely


Ian L. Whitfield

Plot 188 Cosy Corner

**PUBLIC PARTICIPATION REPLY FORM FOR MINING PERMIT APPLICATION:
FARM 1090, EAST LONDON**

Please return by fax or registered post to:

Fax: 041-3672049

J. A. van As
Stellenryck Environmental Solutions

Postal address:

Stellenryck Environmental Solutions
4 Josephine Avenue
Lorraine
6070

Contact details of Interested & Affected Party

Name: ANDY VAN DER WATT
Property/Organization: 110 + 111 + 112
Postal address: P.O. Box 55, BERTHOUD, 5660
Telephone: _____ Fax No. 043-6426844
Mobile: 082 893 9053 E-mail: DANJEN@INTEKAM.co.za

Please list your comments on the project (Should you require more space use additional page):

1. NOISE LEVELS WILL HIGH AND VERY DISTURBING
2. PROPERTY VALUE WILL DROP
3. SALE OF PROPERTIES WILL BE NEARLY IMPOSSIBLE
4. WE HAVE A CONSTANT WATER PROBLEM: WHERE WILL YOU GET WATER FROM?
5. POSSIBLE OF VAGRANT AND BREAKINS WILL INCREASE
6. NO SAFETY ON BEACH GUARENTEED (WAS ALWAYS SAFE)
7. STRONGLY AGAINST THIS WHOLE PROPOSED MINING.
8. LEGAL STEPS WILL BE TAKEN^{OR} IF NEEDED.

I have no comments on the proposed W. R. Ross mining venture: n/a - AGAINST.

I, ANDY VAN DER WATT, confirm that I have received the Public Consultation Notice from Mr. W. R. Ross regarding sand mining on the Farm 1090, East London.

Andy Van.
Signature

5903905123085
ID Number

26-3-2012
Date

Name of any other person whom you think should be consulted

Name and Surname.....
Farm Name and Portion.....
Telephone.....Fax.....
Address.....

**PUBLIC PARTICIPATION REPLY FORM FOR MINING PERMIT APPLICATION:
FARM 1090, EAST LONDON**

Please return by fax or registered post to:

Fax: 041-3672049
J. A. van As
Stellenryck Environmental Solutions

Postal address:
Stellenryck Environmental Solutions
4 Josephine Avenue
Lorraine
6070

Contact details of Interested & Affected Party

Name: MR. STANLEY THOMAS CHARLES CLARKE
Property/Organization: 102 CYETER DRIVE COSY CORNER
Postal address: P.O. BOX 91 KIDDS BEACH
Telephone: 043 781 208 Fax No: ---
Mobile: --- E-mail: ---

Please list your comments on the project (Should you require more space use additional page).

1. CONCERNED ABOUT THE DETERIORATION OF OUR ACCESS ROAD DUE TO THE USE OF HEAVY DUTY VEHICLES CARTING SAND.
2. DUST FILTERING INTO OUR RESERVOIRS.
3. WATER SUPPLY TO THE MINE - FROM WHERE?
4. UNEMPLOYED WALKING THROUGH COSY CORNER TO SEEK EMPLOYMENT AT THE SAND MINE. CRIME HAZARD.
5. OUR PROPERTY VALUE WILL DECREASE.

I have no comments on the proposed W. R. Ross mining venture.

I, STANLEY THOMAS CHARLES CLARKE confirm that I have received the Public Consultation Notice from Mr. W. R. Ross regarding sand mining on the Farm 1090, East London.

[Signature] 3312235021082 26.03.2012
Signature ID Number Date

Name of any other person whom you think should be consulted
Name and Surname.....
Farm Name and Portion.....
Telephone.....Fax.....
Address.....

Objections were received from about 25 residences – all objecting to those issues listed in the EMP.

Response was written as follows:



Stellenryck Environmental Solutions

4 Josephine Ave Mobile: 082 4140 464 Fax: 041-367 2049
Lorraine Office: 041-367 2049 E-mail: stellenryck@telkomsa.net
6070

Mr T W Austin

P O Box 196

Kidd's Beach

5264

27 March 2012

RESPONSE TO YOUR OBJECTIONS TO THE MINING OF SAND ON FARM 1090, EAST LONDON.

Your letter dated 21 March 2012 has reference and contents thereof fully noted. Thank you for your prompt response and for attending the public meeting held on 26 November 2011.

During the meeting your concerns raised in the letter were addressed, however your comments are still regarded valuable. Please note that all impacts, environmental and social, have been investigated and will be fully captured in the Environmental Management Plan (EMP). The report submitted to you is a summary of the environmental investigation to provide you with a better understanding of the impacts that we have identified and the ratings thereof. The Environmental Management Plan (EMP) is the complete document that will be submitted to the Department of the Mineral Resources for their scrutiny and approval/rejection.

The Cosy Corner access road dispose of a sub-standard tar surface and will not be able to accommodate heavy traffic, as you might be well aware of. Thus access to the site will be from the Lillyvale Road via a gravel servitude road across Mr Lustgarden’s farm. The Lillyvale Road is of average to poor standard and is also used by two other mining concerns and it will experience an additional impact on structural integrity and applicant will have to contribute to maintenance.

There will be thus no additional heavy vehicle traffic on the Cosy Corner access road due to this mining venture. However Mrs Ross and Mr Lustgarden will be directly impacted on, since this access road is on their properties respectively. But, as already indicated, these roads are already in use by other illegal mining companies and to date no complaint has been received from any residence regarding the use of these road by the mining companies.

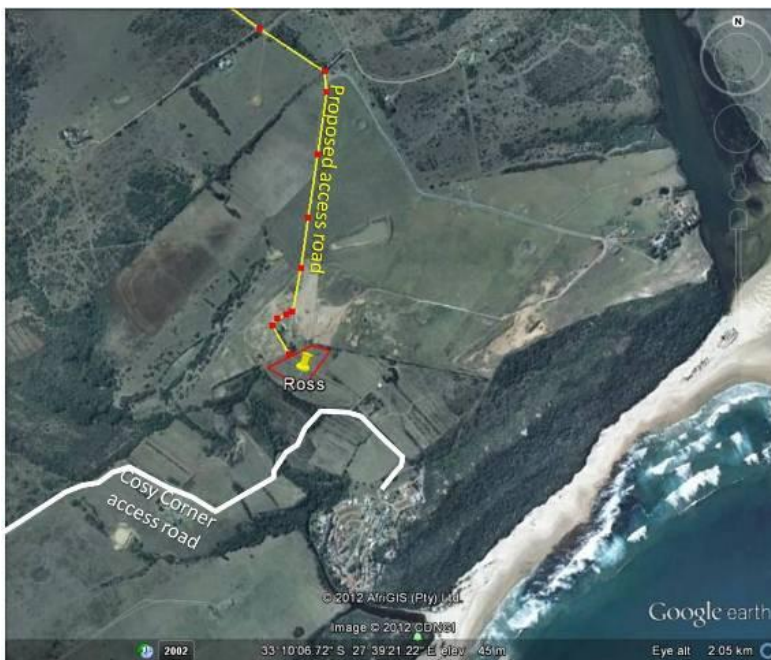


Figure 30: Proposed access road from the mine area is indicated in yellow, the Cosy Corner access road is indicated in white.

Air pollution will be restricted to dust generated, which will be discussed later. In terms of vehicular emissions: will be related to excavators, one frond-end loader, and a few trucks and thus exhaust emissions generated at the site will be insignificant. In addition, people would not reside on the property; therefore smoke generated by cooking fires would not be a consideration. No waste would be burned on site. No other form of chemical air pollution is envisaged. No odours will be generated by the mining operation.

In terms of dust: the report indicated that dust is the most significant impact, due to wind blasting. During the south-easterly winds, which are most frequently experienced in this area, the residence of Cosy Corner will not be in direct line of the wind action, as the wind blows from the south-east into the north-west, and therefore dust will blow away from the Cosy Corner residence, but directly into Mrs Ross residence. However, with north-westerly winds, which are also experienced in this area, the sand blasting might impact on the residence if the wind is more of a northerly wind rather than north-west; nevertheless the impact is listed, but it has also been very successfully proven at other mining sites that wetting/dampening of sand and raising of hessian sheets effectively mitigates windblown sand. All of these mitigation measures have been stipulated in detail in the EMP.

In addition, illegal mining of about 10Ha in extent, operating within closer distance to Cosy Corner residence and which is not applying any mitigation measure to control dust, have never lead to any complaints received from any residence at Cosy Corner. The Department of Mineral Resources (DMR) has to date not received any complaint about dust or noise as a nuisance and/or unbearable to any resident.

Thus if this application is approved, the 1.5Ha mine area situated further from the residence will be regulated by the Department of Mineral Resources (DMR) and control will be exercised, compelling the applicant to put into effect all the mitigation measures. Illegal mining is essentially not governed by an EMP and thus mitigation measures will not be enforce and the DMR has to file a case of illegal mining against such a person/company.

In terms of noise: the rural nature of the area involved leads the ambient noise levels on average to be below 30 dB. Thus within 100m from the quarry, noise levels will abate to approximately 50-60dB and within 200m to approximately 50dB. Therefore it is expected that noise levels at the closest Cosy Corner residence, which is about 400m away from the site, will preclude any significant impact on residence. Furthermore, no mining will take place over weekends and public holidays, but normal working hours during the week will be applied.

Devaluating of property might be experienced within the two years that the mine is valid, since people don't necessarily want to buy a house in close proximity to a mine, but when mining is done correctly and governed by the DMR, it will not affect your property value, since this mining venture will be temporary and be rehabilitated. Once the mining has exhausted the minerals in the allocated area or the mining permit period has expired, the mine must be closed. The DMR will only grant closure if the site has been rehabilitated to at least a 70% status and if all the interested and affected parties are satisfied with the rehabilitation. If Mr Ross fails to reach these closure objectives, the DMR will appoint someone to rehabilitate the site and it will be to the cost of the applicant, Mr Ross. This is the procedure that is followed by the DMR.

Since 2004 illegal mining has occurred in the abutting properties to the proposed mining site, to an extent of about 10Ha in size and to date this illegal site is not regulated and rehabilitation is not enforced. There has been no record of property devaluating due to this illegal mining, and it is highly unlikely that a smaller mine, governed by the DMR will devalue any property in the long term. Mining is not considered a change in land use and the site will be restored to a grazing unit once mining ceases.

In terms of increase crime, there is always a possibility of increase crime associated with the increase of development: as is the case with any additional development to your area, which includes residential developing with an increase of construction workers being present in the residential areas, as well as harvest time for farmers, when casual workers are employed on a contract basis. The proposed mining will result in an addition of mostly 2-3 workers on site at any given time. These will include the front-end loader operator, the truck driver and a member of staff performing the rehabilitation work at the site, which in this case will be an existing farm worker for Mr Ross. Furthermore, the workforce will not reside on the mine, but will commute to work every day. Nevertheless, the EMP does provide in-house rules and all staff members must adhere to these rules; they include:

- No wandering of any quarry workers on any area outside the quarry area, especially onto the neighbouring property.
- No stock theft or poaching will be tolerated by the workforce and any person found guilty of these transgressions will be removed from the property, dismissed and handed over to the police for sentencing. Landowners will be fully compensated for stock loss.
- No wood will be gathered from outside the mine area and no plant or crop will be removed by the workforce. Any transgressions in this regard will result in disciplinary action being taken and the guilty party being removed from the property.

In the Environmental Management Plan (EMP) all mitigation measures have been prescribed to mitigate even the smallest of impacts. If you feel that we have not responded satisfactorily to your objection, please do not hesitate to contact us.

I trust you will find this in order.

Yours sincerely



J. A. van As

STELLENRYCK ENVIRONMENTAL SOLUTIONS



Stellenryck Environmental Solutions

4 Josephine Ave Mobile: 082 4140 464 Fax: 041-367 2049
Lorraine Office: 041-367 2049 E-mail: stellenryck@telkomsa.net
6070

Mr Cameron

P O Box 15070

Beacon Bay

5205

27 March 2012

RESPONSE TO YOUR OBJECTIONS TO THE MINING OF SAND ON FARM 1090, EAST LONDON.

Your letter dated 21 March 2012 has reference and contents thereof fully noted.

Please take note that the report submitted to you is a summary of the environmental investigation to provide you with a better understanding of the impacts that we have identified and the ratings thereof. The Environmental Management Plan (EMP) is the complete document that will be submitted to the Department of the Mineral Resources for their scrutiny and approval/rejection. All impacts, whether potential or definite, must be listed, assess and rated. Thereafter complete remediation measures are stipulated to mitigate all potential and definite impacts. Thus when the report or EMP states: "potential" or "seemingly" impact, the objective is not to down play the impact, but to indeed identify it and prescribe all mitigation measures for sustainable development. Wording should therefore be read in context of the document.

We would like to respond to the letter in point format as raised in your letter:

- 1) Over the past few years sand mining has indeed occurred on both Mrs Ross and Mr Lustgarden properties, directly adjacent to Mr Ross's mining application area, thus your statement that no mining in the immediate area has taken place, is incorrect. The sand mine on Mr Lustgarden's property is unfortunately operating without mining authorisation since 2004 and have to date already mined about 10Ha in extent. This is therefore also the reason why you have never been informed of such mining. Mr Ross's application is only for a 1.5Ha area; is following the correct application procedure, and will only be operational for 2 years in accordance with the conditions of the Mineral Resources Development Act, 2002, if approved. Thus, this application will be legal and regulated and should not be misconstrue with the mining area on Mr Lustgarden's property. This area under application is also on private land and the land owner, Mr Ross, uses this portion of land for grazing, as it is zoned for agricultural purposes. Thus in terms of land use, the only directly affected person will be the land owner, since he will not be able to used this portion of land for grazing while mining is in operation. Once the area is rehabilitated, it will be restored back to a grazing unit. It would be in the interest of Mr Ross, who is the applicant but also the landowner, to rehabilitated the site and not allow it to degrade.

Impact on residence, in terms of land capability, was identified and the report indicated that the recreational use will be impacted on. The report simply noted that to date, no resident at Cosy Corner have complained or objected to the mining taking place on Mr Lustgarden's property and therefore concluded that no significant impact has been experienced by the residence in the past with regard to the recreation use of abutting land, since there is no proof of complaint. However, regardless of such circumstances, the Environmental Management Plan that will be submitted to the DMR, stipulates an aggressive, very specific, rehabilitation plan, which was also mentioned in the report, to mitigate any potential impact and to restore all recreational use of the land, whether or not the impact has been experienced or will be experienced. It is therefore not clear where the report is misleading or dishonest.

Illegal mining has clearly been undetected by you and although some of the areas of the illegal mining area have been rehabilitated, there are still large areas that have not been rehabilitated since this site is not regulated by the Department (DMR). Mr Ross will be governed by the DMR through an approved Environmental Management Plan, a legal document binding him to rehabilitate the mine area within a certain amount of time. Our assessment therefore remains that the impact on land use and capability will be of low significance. Should Mr Ross fail to rehabilitate the DMR will retain rehabilitation monies from Mr Ross to complete all outstanding rehabilitation as a surety.



Figure 31: Aerial Photo indicating current illegal mining in close facility to Cosy Corner. Illegal mining has been in operation since 2004.

Please note that the above picture indicates the illegal mining area and extent thereof in the area close to Cosy Corner and relation to the new application. In the picture it is clear where rehabilitation has taken place and where rehabilitation is still outstanding.

- 2) Our assessment on fauna is based on the site visits, but also on the vegetation survey and assessment of the site and the surrounds, desk top studies and information received from residents of Cosy Corner, during the public meeting. Furthermore, our assessment is based on years of experience and expertise in the environmental section. Vegetation plays an important role in maintaining ecosystems, which in turn plays a major role in hosting fauna and specie diversity. This area falls within the Subtropical Transitional Thicket. Normally, the thicket habitat poses a definite ecological niche for a variety of animal species: since the canopy provides adequate forage, nesting place and protection for avian fauna, whilst the under storage provide adequate protection and forage for browsers. However, at the mining site, all the vegetation providing this ecological niche was removed to make way for grazing. In fact the site hosts secondary grass land and at certain parts even covered with weeds. Most of the abutting areas also only host secondary grassland and plantation. There are patches in the surrounding area with subtropical thicket, which is also impacted on through alien vegetation infestation. The picture below indicates the large amount of areas that have been cleared to make way for agriculture and residential development.

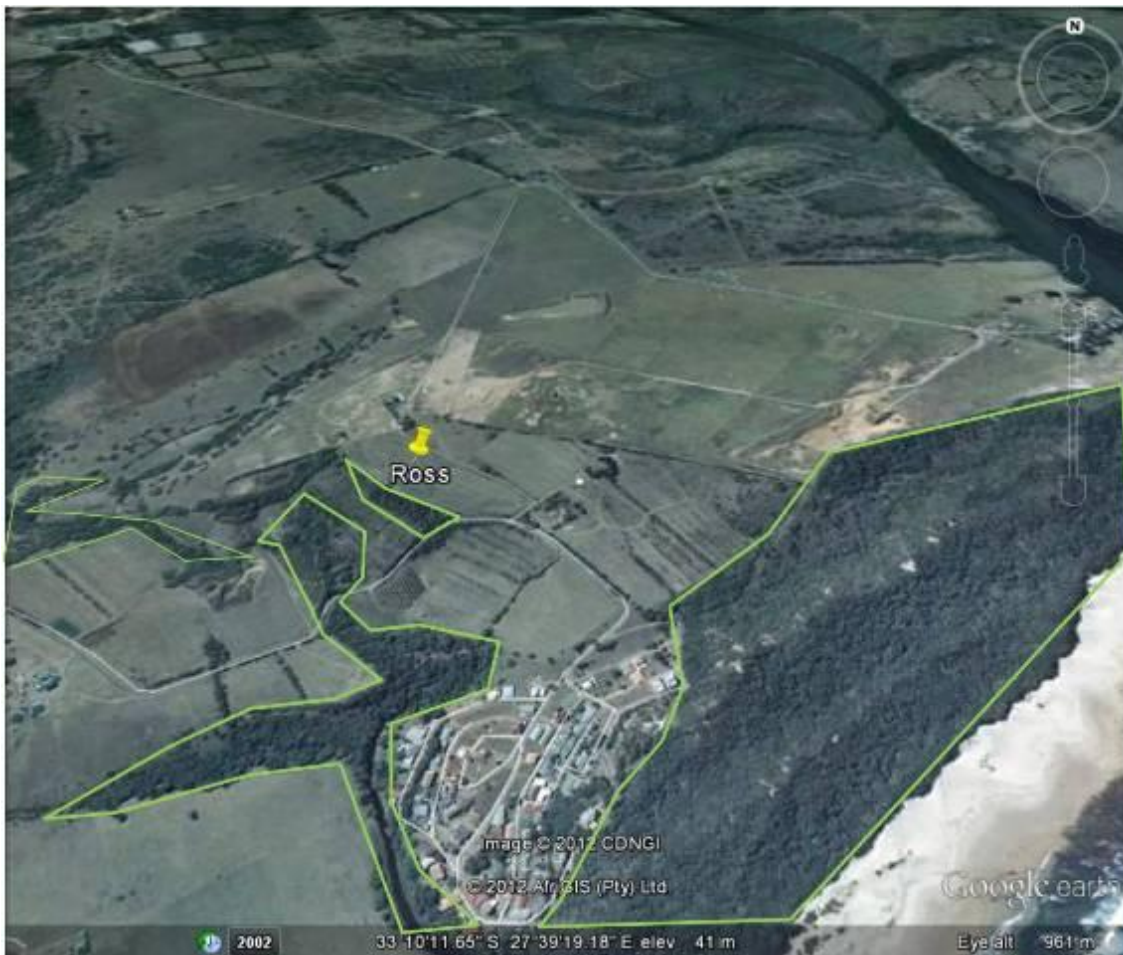


Figure 32: Note the areas surrounded with green highlight have not been cleared for residential development or agriculture while the rest of the surrounding areas have been cleared.

Bushbucks in particular, are mainly browsers, but on rare occasions will consume grass. They are selective feeders, but during hardship are able to adapt their feeding habits for the sake of survival. Thus it is not uncommon to notice bushbuck in your area, as they most likely have adapted to the surroundings and still have access to the smaller patches of area that has not been disturbed. Usually bushbucks are more active during the early morning and part of the night, but as you have noted, also fairly active during the day. Bushbuck's preferred habitat is however dense bush along river courses, which is applicable to your area, since this antelope is always found close to permanent water courses.

Since the site is 1.5Ha, within an open area already disturbed, any suitable habitat for mammals is considered highly unlikely at the site. It must be emphasized that the mining site might provide feed for some wild animals, but the secondary grassland does not provide habitat for wild animals, except for some small rodents, reptiles, insects, etc. Most of the rare animal's habitats are associated with riverine environs, which preclude their existence in the study site, since the site is on a hill and not within a river environment. Mining would be restricted to a limited area and the slow extraction rate

would provide adequate time for slow migration from the affected area and be sustained in the similar adjoining habitats. The patches of Coastal forest left will remain to provide habitat for these animal species and mining will not impact on these habitats. Since this is also a farm land, this area is and will continue to be used to provide feed for cattle, thus this small area to be mined will not be rehabilitated to thicket vegetation but to grazing land. It must also be noted that human activities such as residential development was established in prime coastal forest compromising a very large section of habitat reserved for these indigenous animals. In addition, illegal mining activities and farming also impacts on the flora and fauna in the area. The fact that you still spot bushbuck is an indication of the animal adapting to the collective impact of human activities.

Once the site has been rehabilitated, the animals will return to site as currently the case. This impact is temporary.

- 3) The report indicates that uncontrolled runoff from the mining area could increase the silt laden in the stream below, with the consequence of smothering the stream vegetation. The mine plan proposed in the document and the EMP does however prescribe very strict mine development strategy to protect the site and the stream system by diverting run-off from the site, through contours, to the south-east of the site into areas that is well established with grassland and well away from the stream environment. This will filter out any possible silt received from the site and effectively mitigate the possible impact on the stream. This strategy will also effectively mitigate any potential erosion that might develop on site. Your comment was noted that the report did not indicate that the stream abuts the entire length of Cosy Corner settlement and will be stipulated as such in the EMP. To our knowledge residents of Cosy Corner utilize borehole and municipal water for consumption and not the stream, therefore it is not clear what direct impact you will suffer due to this mining venture. It must be noted that smothering of vegetation is listed as a possible impact in order to list mitigation measures, however the nature of stream environments is dynamic and increase in silt would eventually be absorbed in the form of wetland vegetation. The mining area will however be beacons off and no disturbance outside of the mine area will be allowed.
- 4) The report indicated that dust is the most significant impact, due to wind blasting. During the south-easterly winds, which are most frequently experienced in this area, the residence of Cosy Corner will not be in direct line of the wind action, as the wind blows from the south-east into the north-west, and therefore dust will blow away from the Cosy Corner residence, but directly into Mrs Ross residence. However, with north-westerly winds, which are also experienced in this area, the sand blasting might impact on the residence if the wind is more of a northerly wind rather than north-west; however, it has been very successfully proven at other mining sites that wetting/dampening of sand and raising of hessian sheets effectively mitigates windblown sand. In addition, illegal mining operating within closer distance to Cosy Corner residence have never lead to any complaints received from any residence at Cosy Corner to the Department of Mineral Resources (DMR), that dust is a nuisance and/or unbearable. There is no record that Cosy Corner have ever been inundated by dust due to the illegal mining on an area of about 10Ha, thus it is unreasonable to state that would be the case with a 1.5Ha mine area situated further from the residence.



Figure 33: Line of wind in relation to the site and residence

Furthermore, please elaborate on your statement that mitigation measure to control dust in the long term will not be enforced based on historical experience. What historical experience are you referring to? If you are referring to the illegal mining, you are contradicting your statement in your letter listed as number 1. In addition, illegal mining is essentially not governed by an EMP and thus mitigation measures will not be enforce and the DMR has to file a case of illegal mining against such a person/company. Therefore, any historical experience you might have regarding mining in the past is valid, but not applicable to this client or application, unless you are referring to some other experience. Please clarify your statement.

- 5) It is not sure what your objection is regarding the production statistics? The fact remains that regardless what the demand for sand is, whether it is high or low, an allocated area for mining with a restricted depth and a restricted time period will be given to the application. Thus, in this case, the mining area is restricted to 1.5Ha, of 1-2m deep with a time period of 2 years with possibility to renew the permit three times for one year each if the market is slow. Thus the higher the demand the faster the allocated mineral will be mined and once the area has reached its boundary it has to cease. If the market demand is slow and the allocated minerals have not been removed over the 2year permit period, then the applicant may apply to the DMR for renewal, which they will grant only upon the successful assessment of the site to evaluated rehabilitation. If the applicant has failed to mine all the minerals in the allocated 1.5Ha area for whatever reason in the allocated permit time, then he has to cease mining and apply for mine closure. Unlike with illegal mining, where the mining is not controlled and can just continue, with no evaluation and restriction or application for closure.

- 6) Your comment has been noted and apologies given. It is not in the interest of Stellenryck Environmental Solutions (SES) to exclude any interested and affected party, as it is of value to receive all comments and concerns to incorporate it into the EMP and ensure that all the issues have been addressed and documented. The original list of Interested and Affected Parties (IAP's) was given to us by Mr Ross. In an effort to invite all the residence for their comments and to provide background information and answer any questions, a public meeting was held with an open invitation to all residence, as you have noted in your letter, on 23 November 2011. In addition, a notice was also forward to the office at Cosy Corner. The officials did indeed place the notice on the notice board at the community hall and the notice provides a summary of the application, locality of the mine, as well as details of the applicant and us, the consultants. It is however impossible to identify every individual in a whole community and SES advised the residents present at the meeting that a follow-up letter with a summary of the environmental assessment will be forwarded to the director of the CC Homeowners association. Such a letter and applicable documentation was forwarded to a lady called Elaine on 21 November 2011, prior to the public meeting, and she was tasked to distribute the document to the director in charge of the CC Homeowners association, Mr Kevin Quayle. Mr Quayle had the responsibility to distribute this information to the whole community, as he has all the contact information of the residence. In the said letter dated 21 November 2011, residences were given time until 15 December 2011 to respond, which is 3 weeks and deemed sufficient time. Elaine confirmed that she forwarded the letter to Mr Quayle. It is unfortunate that he might have failed to include you in the distribution of the letter. The meeting was not the final date for residence to respond or object to the application. However, we have received your objections and thank you for your response.
- 7) It is very important for any mining application to consider the social impacts, whether it is beneficial or harmful to the surrounding community. Sand mining is beneficial to some community members requiring sand for residential construction, thus the availability of such material is very convenient and more affordable, than hauling sand from East London. On the other hand, could be harmful to other community members due to reasons already listed and discussed. However, one has to balance economical growth with social impacts. Thus the access road to be used will be the very same road that has been used by the illegal mining during the past few years, on a farm road on private land owned by Mrs Ross and Mr Lustgarden connecting with the Lillyvale Road and eventually the Kaizer's Beach Road. The Cosy Corner road will not be used, thus residence will continue to enjoy the recreational use of this road without interference from this mining venture.

In addition, no complaint has been received from any residence regarding trucks hauling material and transporting sand via the Lillyvale road and no incident has been reported. Thus the balance to economical growth and road safety to residents has been considered and the best option is to use the private farm road, rather than the public Cosy Corner road, not only due to road safety issues, but also due to the poor condition of this road.

Furthermore, in house rules will be established by the applicant and the truck drivers, as it is standard procedure for any legal mining operation, thus punishment may include dismissing the driver and filing a case at the local police, depending on the incident.

In terms of noise: the rural nature of the area involved leads the ambient noise levels on average to be below 30 dB. Thus within 100m from the quarry, noise levels will abate too approximately 50-60dB and within 200m to approximately 50dB. Therefore is it expected that noise levels at the Cosy Corner residence, which is about 400m away, will preclude any significant impact on residence. Furthermore, no mining will take place over weekends and public holidays, but normal working hours during the week will be applied.

It is not clear why you feel that this project has been un-research, as all impacts, definite or potential, have been listed, evaluated and rated. In addition, all mitigation measures have been prescribed to mitigate even the smallest of impacts. If you still feel like you disagree with any of our assessments and ratings of the impacts, please provide your assessment, supplemented by scientific proof of such an assessment.

If you feel that we have not responded satisfactory to your objections, please do not hesitate to contact us.

I trust you will find this in order.

Yours sincerely



J. A. van As

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27 March 2012

RESPONSE TO YOUR OBJECTIONS TO THE MINING OF SAND ON FARM 1090, EAST LONDON.

Your letter dated 26 March 2012 has reference and contents thereof fully noted. Thank you for your prompt response.

All impacts, environmental and social, have been investigated and will be fully captured in the Environmental Management Plan (EMP). Please take note that the report submitted to you is a summary of the environmental investigation to provide you with a better understanding of the impacts that we have identified and the ratings thereof. The Environmental Management Plan (EMP) is the complete document that will be submitted to the Department of the Mineral Resources for their scrutiny and approval/rejection.

The Cosy Corner access road dispose of a sub-standard tar surface and will not be able to accommodate heavy traffic, as you might be well aware of. Thus access to the site will be from the Lillyvale Road via a gravel servitude road across Mr Lustgarden's farm. The Lillyvale Road is of average to poor standard and is also used by two other mining concerns operating illegally and it will

experience an additional impact on structural integrity and applicant will have to contribute to maintenance.

There will be thus no additional heavy vehicle traffic on the Cosy Corner access road due to this mining venture. However Mrs Ross and Mr Lustgarden will be directly impacted on, since this access road is on their properties respectively. But, as already indicated, these roads are already in use by other illegal mining companies and to date no complaint has been received from any residence regarding the use of these road by the mining companies.

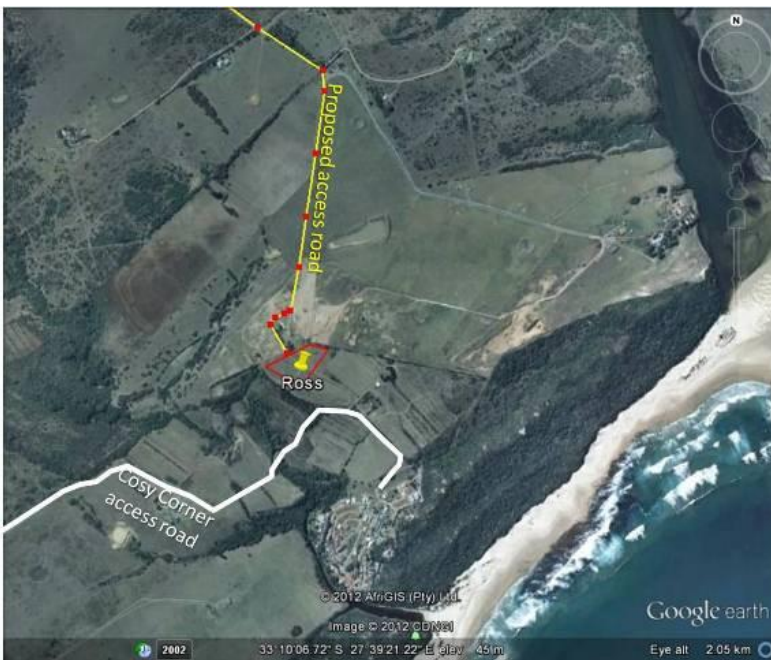


Figure 34: Proposed access road from the mine area is indicated in yellow, the Cosy Corner access road is indicated in white.

In terms of dust, the report indicated that dust is the most significant impact, due to wind blasting. During the south-easterly winds, which are most frequently experienced in this area, the residence of Cosy Corner will not be in direct line of the wind action, as the wind blows from the south-east into the north-west, and therefore dust will blow away from the Cosy Corner residence, but directly into Mrs Ross residence. However, with north-westerly winds, which are also experienced in this area, the sand blasting might impact on the residence if the wind is more of a northerly wind rather than north-west; nevertheless the impact is listed, but it has also been very successfully proven at other mining sites that wetting/dampening of sand and raising of hessian sheets effectively mitigates windblown sand. All of these mitigation measures have been stipulated in detail in the EMP.

In addition, illegal mining of about 10Ha in extent, operating within closer distance to Cosy Corner residence and which is not applying any mitigation measure to control dust, have never lead to any complaints received from any residence at Cosy Corner. The Department of Mineral Resources (DMR) has to date not received any complaint about dust or noise as a nuisance and/or unbearable to any resident.

With the limited extent of the mine (1.5Ha), recharge of the aquifer will sparsely be affected, since the borehole water from Mr Ross's property will only be used for rehabilitation if necessary and for dust suppression on windy days. The increase in water usage will be low at the site. Re-vegetation will also coincide with the rainy seasons to ensure that no extra water is used.

In terms of increase in crime: there is always a possibility of increase crime associated with the increase of development: as is the case with any additional development to your area, which include residential developing with an increase of construction workers being present in the residential areas, as well as harvest time for farmers, when casual workers are employed on a contract basis. The propose mining will result in an addition of mostly 2-3 workers on site at any given time. These will include the front-end loader operator, the truck driver that will only be on site for a limited amount of time, and a member of staff performing the rehabilitation work at the site, which in this case will be an existing farm worker for Mr Ross. Furthermore, the workforce will not reside on the mine, but will commute to work every day. Nevertheless, the EMP does provide in house rules and all staff members must adhere to these rules; they include:

- No wandering of any quarry workers on any area outside the quarry area, especially onto the neighbouring property.
- No stock theft or poaching will be tolerated by the workforce and any person found guilty of these transgressions will be removed from the property, dismissed and handed over to the police for sentencing. Landowners will be fully compensated for stock loss.
- No wood will be gathered from outside the mine area and no plant or crop will be removed by the workforce. Any transgressions in this regard will result in disciplinary action being taken and the guilty party being removed from the property.

Devaluating of property might be experience within the two years that the mine is valid, since people don't necessarily want to buy a house in close proximity to a mine, but when mining is done correctly and governed by the DMR, it will not affect your property value, since this mining venture will be temporary and be rehabilitated. Once the mining has exhausted the minerals in the allocated area or the mining permit period has expired, the mine must be closed. The DMR will only grant closure if the site has been rehabilitated to at least a 70% status and if all the interested and affected parties are satisfied with the rehabilitation. If Mr Ross fails to reach these closure objectives, the DMR will

appoint someone to rehabilitate the site and it will be to the cost of the applicant, Mr Ross. This is the procedure that is followed by the DMR.

It should be noted that since 2004 illegal mining has occurred in the abutting properties to the proposed mining site, to an extent of about 10Ha in size and to date this illegal site is not regulated and rehabilitation is not enforced. There has been no record of property devaluating due to this illegal mining, and it is highly unlikely that a smaller mine, governed by the DMR will devalue any property. Mining is not considered a change in land use and the site will be restored to a grazing unit once mining ceases.

In the Environmental Management Plan (EMP) all mitigation measures have been prescribed to mitigate even the smallest of impacts. If you feel that we have not responded satisfactorily to your objection, please do not hesitate to contact us.

I trust you will find this in order.

Yours sincerely



J. A. van As

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27 March 2012

RESPONSE TO YOUR OBJECTIONS TO THE MINING OF SAND ON FARM 1090, EAST LONDON.

Your letter dated 19 March 2012 has reference and contents thereof fully noted. Thank you for your prompt response.

All impacts, environmental and social, have been investigated and will be fully captured in the Environmental Management Plan (EMP). Please take note that the report submitted to you is a summary of the environmental investigation to provide you with a better understanding of the impacts that we have identified and the ratings thereof. The Environmental Management Plan (EMP) is the complete document that will be submitted to the Department of the Mineral Resources for their scrutiny and approval/rejection.

In terms of impact on wild life and the environment your attention is drawn to the fact that at this particular site all the original vegetation was long ago disturbed to establish a grazing unit. Vegetation plays an important role in maintaining ecosystems, which in turn plays a major role in

hosting fauna and specie diversity. The Cosy Corner area falls within the Subtropical Transitional Thicket. Normally, the thicket habitat poses a definite ecological niche for a variety of animal species: since the canopy provides adequate forage, nesting place and protection for avian fauna, whilst the under storage provide adequate protection and forage for browsers. However, at the mining site, all the vegetation providing this ecological niche was removed to make way for grazing. In fact the site hosts secondary grass land and at certain parts even covered with weeds. Most of the abutting areas also only host secondary grassland and plantation. There are patches in the surrounding area with subtropical thicket, which is also impacted on through alien vegetation infestation due to human activities. The picture below indicates the large amount of areas that have been cleared to make way for agriculture and residential development.

Since the site is 1.5Ha, within an open area already disturbed, any suitable habitat for mammals is considered highly unlikely at the site. It must be emphasized that the mining site might provide feed for some wild animals, but the secondary grassland does not provide habitat for wild animals, except for some small rodents, reptiles, insects, etc. Most of the rare animal's habitats are associated with riverine environs, which preclude their existence in the study site, since the site is on a hill and not within a river environment. Mining would be restricted to a limited area and the slow extraction rate would provide adequate time for slow migration from the affected area and be sustained in the similar adjoining habitats. The patches of Coastal forest left will remain to provide habitat for these animal species and mining will not impact on these habitats. Since this is also a farm land, this area is and will continue to be used to provide feed for cattle, thus this small area to be mined will not be rehabilitated to thicket vegetation but to grazing land. It must also be noted that human activities such as residential development was establish in prime coastal forest compromising a very large section of habitat reserved for these indigenous animals. In addition, illegal mining activities and farming also impacts on the flora and fauna in the area. The fact that bushbuck is occasionally spotted is an indication of wild life adapting to the collective impact of human activities.

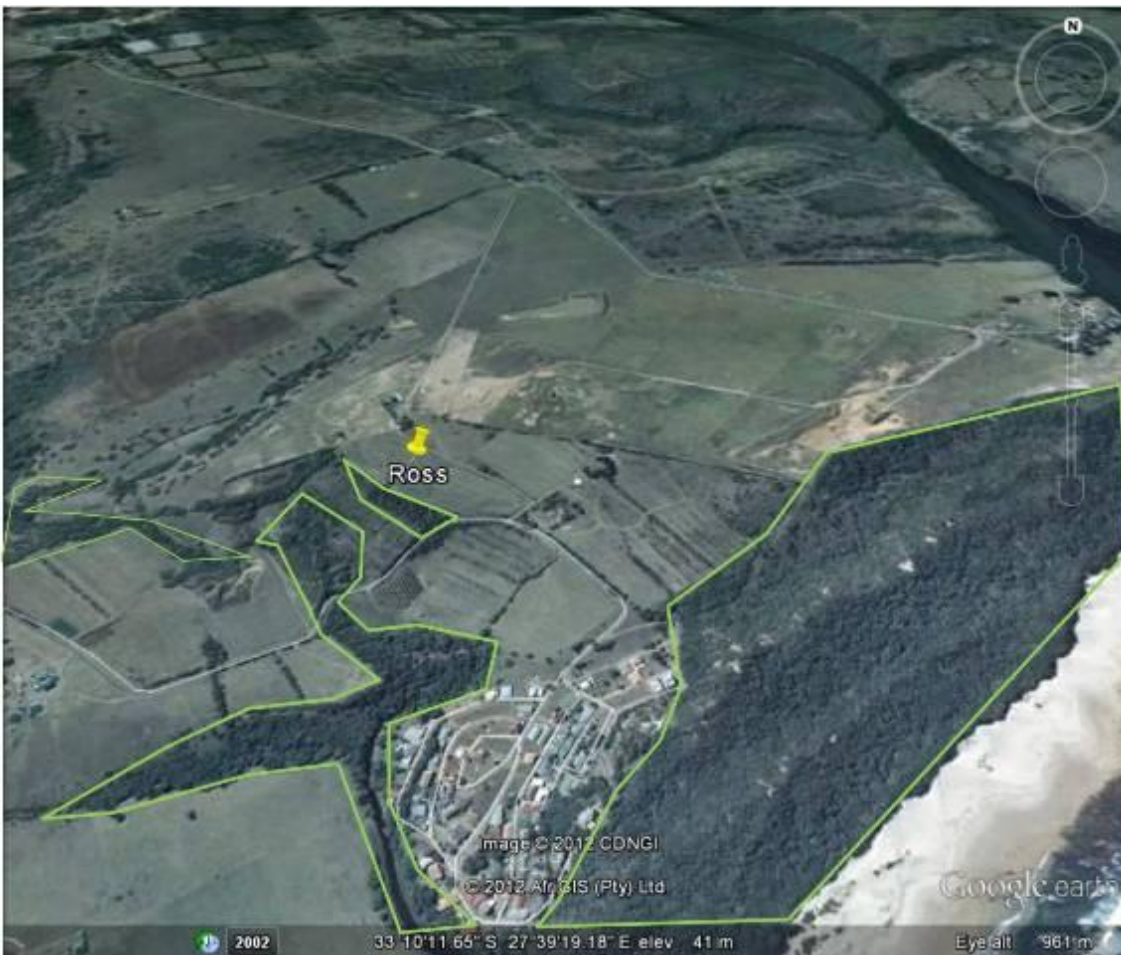


Figure 35: Note the areas surrounded with green highlight have not been cleared for residential development or agriculture while the rest of the surrounding areas have been cleared.

Once the site has been rehabilitated, the animals will return to site as currently the case. Thus the site poses no significant faunal niche, however, it is considered a faunal corridor and larger animals, taking refuge in the Coastal Reserve may roam the area during the night. Since the site is small and will be fully rehabilitated no permanent or significant impact will be imposed on species diversity, forage patterns or migration.

The Cosy Corner access road dispose of a sub-standard tar surface and will not be able to accommodate heavy traffic, as you might be well aware of. Thus access to the site will be from the Lillyvale Road via a gravel servitude road across Mr Lustgarden's farm. The Lillyvale Road is of average to poor standard and is also used by two other mining concerns and it will experience an additional impact on structural integrity and applicant will have to contribute to maintenance.

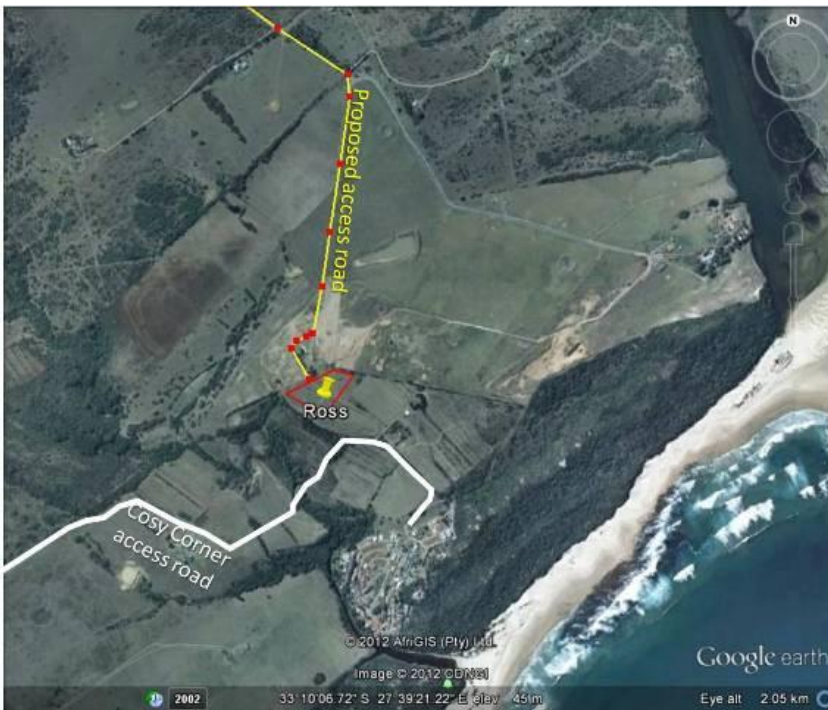


Figure 36: Proposed access road

from the mine area is indicated in yellow, the Cosy Corner access road is indicated in white.

There will be thus no additional heavy vehicle traffic on the Cosy Corner access road due to this mining venture. However Mrs Ross and Mr Lustgarden will be directly impacted on, since this access road is on their properties respectively. It is very important for any mining application to consider the social impacts, whether it is beneficial or harmful to the surrounding community. Sand mining is beneficial to some community members requiring sand for residential construction, thus the availability of such material is very convenient and more affordable, than hauling sand from East London. On the other hand, could be harmful to other community members due to all the reasons already listed and discussed in the report. However, one has to balance economical growth with social impacts. Therefore the Cosy Corner access road will not be the best option but rather the alternative roads that are already in use by other illegal mining companies. To date no complaint has been received from any residence regarding the use of these roads by the mining companies. Through this application process more control will be exercised and the applicant will take responsibility for road maintenance.

Over the past few years sand mining has occurred on Mr Lustgarden property, directly adjacent to Mr Ross’s mining application area. The sand mine on Mr Lustgarden’s property is unfortunately operating without mining authorisation since 2004. Mr Ross’s application is only for a 1.5Ha area; is following the correct application procedure, and will only be operational for 2 years in accordance with the conditions of the Mineral Resources Development Act, 2002, if approved. Thus, this

application will be legal and regulated and should not be misconstrued with the mining area on Mr Lustgarden's property.

Devaluing of property might be experienced within the two years that the mine is valid, since people don't necessarily want to buy a house in close proximity to a mine, but when mining is done correctly and governed by the DMR, it will not affect your property value, since this mining venture will be temporary and be rehabilitated. Once the mining has exhausted the minerals in the allocated area or the mining permit period has expired, the mine must be closed. The DMR will only grant closure if the site has been rehabilitated to at least a 70% status and if all the interested and affected parties are satisfied with the rehabilitation. If Mr Ross fails to reach these closure objectives, the DMR will appoint someone to rehabilitate the site and it will be to the cost of the applicant, Mr Ross. This is the procedure that is followed by the DMR.

Since 2004 illegal mining has occurred in the abutting properties to the proposed mining site, to an extent of about 10Ha in size and to date this illegal site is not regulated and rehabilitation is not enforced. There has been no record of property devaluating due to this illegal mining, and it is highly unlikely that a smaller mine, governed by the DMR will devalue any property in the long term. Mining is not considered a change in land use and the site will be restored to a grazing unit once mining ceases.

In the Environmental Management Plan (EMP) all mitigation measures have been prescribed to mitigate even the smallest of impacts. If you feel that we have not responded satisfactorily to your objection, please do not hesitate to contact us.

I trust you will find this in order.

Yours sincerely



J. A. van As

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27 March 2012

RESPONSE TO YOUR OBJECTIONS TO THE MINING OF SAND ON FARM 1090, EAST LONDON.

Your letter dated 19 March 2012 has reference and contents thereof fully noted. Thank you for your prompt response.

All impacts, environmental and social, have been investigated and will be fully captured in the Environmental Management Plan (EMP). Please take note that the report submitted to you is a summary of the environmental investigation to provide you with a better understanding of the impacts that we have identified and the ratings thereof. The Environmental Management Plan (EMP) is the complete document that will be submitted to the Department of the Mineral Resources for their scrutiny and approval/rejection.

In terms of noise: the rural nature of the area involved leads the ambient noise levels on average to be below 30 dB. Thus within 100m from the quarry, noise levels will abate to approximately 50-60dB and within 200m to approximately 50dB. Therefore it is expected that noise levels at the closest Cosy

Corner residence, which is about 400m away from the site, will preclude any significant impact on residence. Furthermore, no mining will take place over weekends and public holidays, but normal working hours during the week will be applied.

Air pollution will be restricted to dust generated, which will be discussed later. In terms of vehicular emissions: will be related to excavators, one front-end loader, and a few trucks and thus exhaust emissions generated at the site will be insignificant. In addition, people would not reside on the property; therefore smoke generated by cooking fires would not be a consideration. No waste would be burned on site. No other form of chemical air pollution is envisaged. No odours will be generated by the mining operation.

In terms of dust: the report indicated that dust is the most significant impact, due to wind blasting. During the south-easterly winds, which are most frequently experienced in this area, the residence of Cosy Corner will not be in direct line of the wind action, as the wind blows from the south-east into the north-west, and therefore dust will blow away from the Cosy Corner residence, but directly into Mrs Ross residence. However, with north-westerly winds, which are also experienced in this area, the sand blasting might impact on the residence if the wind is more of a northerly wind rather than north-west; nevertheless the impact is listed, but it has also been very successfully proven at other mining sites that wetting/dampening of sand and raising of hessian sheets effectively mitigates windblown sand. All of these mitigation measures have been stipulated in detail in the EMP.

In addition, illegal mining of about 10Ha in extent, operating within closer distance to Cosy Corner residence and which is not applying any mitigation measure to control dust, have never lead to any complaints received from any residence at Cosy Corner. The Department of Mineral Resources (DMR) has to date not received any complaint about dust or noise as a nuisance and/or unbearable to any resident.

Thus if this application is approved, the 1.5Ha mine area situated further from the residence will be regulated by the Department of Mineral Resources (DMR) and control will be exercised, compelling the applicant to put into effect all the mitigation measures. Illegal mining is essentially not governed by an EMP and thus mitigation measures will not be enforce and the DMR has to file a case of illegal mining against such a person/company.

Visual impact will be unavoidable, but can be successfully mitigated. Mining will change the texture (vegetated to smooth) and color (green to whitish-grey), which will increase visibility, as you have noted. However, please consider that this application is limited to the mining permit period, which is a two year period a with possibility to renew the permit three times for one year each; thereafter the

mine will be closed and the discussed closure process will follow. The mine will also be governed by a legal binding document enforcing rehabilitation. Thus, the Cosy Corner residence that will experience a visual impact to the site will only be subjected to the site for the duration of the mining permit.

The fact that clearing of vegetation for farming purposes is a common phenomenon in your area, does to some extent mitigate the impact considering that only a small portion (1.5Ha) will be disturbed, compared to the farming areas which can consist of areas as large as 5Ha and the illegal mining in your area that has already disturbed about 10Ha. Thus visual impacts will consist of the clearing of the secondary grassland, but with a phase development approach to ensure concurrent rehabilitation. The visual impact could be successfully mitigated over the short term and there will be no long term impact. The site will be restored back to a grazing unit, once mining is completed.

In the Environmental Management Plan (EMP) all mitigation measures have been prescribed to mitigate even the smallest of impacts. If you feel that we have not responded satisfactorily to your objection, please do not hesitate to contact us.

I trust you will find this in order.

Yours sincerely



J. A. van As

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27 March 2012

RESPONSE TO YOUR OBJECTIONS TO THE MINING OF SAND ON FARM 1090, EAST LONDON.

Your letter dated 22 March 2012 has reference and contents thereof fully noted. Thank you for your prompt response.

All impacts, environmental and social, have been investigated and will be fully captured in the Environmental Management Plan (EMP). Please take note that the report submitted to you is a summary of the environmental investigation to provide you with a better understanding of the impacts that we have identified and the ratings thereof. The Environmental Management Plan (EMP) is the complete document that will be submitted to the Department of the Mineral Resources for their scrutiny and approval/rejection.

In terms of devaluing of property: you might experience this phenomena within the two years that the mine is valid, since people don't necessarily want to buy a house in close proximity to a mine, but when mining is done correctly and governed by the DMR, it will not affect your property value, since this mining venture will be temporary and be rehabilitated. Once the mining has exhausted the

minerals in the allocated area or the mining permit period has expired, the mine must be closed. The DMR will only grant closure if the site has been rehabilitated to at least a 70% status and if all the interested and affected parties are satisfied with the rehabilitation. If Mr Ross fails to reach these closure objectives, the DMR will appoint someone to rehabilitate the site and it will be to the cost of the applicant, Mr Ross. This is the procedure that is followed by the DMR.

It should be noted that since 2004 illegal mining has occurred in the abutting properties to the proposed mining site, to an extent of about 10Ha in size and to date this illegal site is not regulated and rehabilitation is not enforced. There has been no record of property devaluating due to this illegal mining, and it is highly unlikely that a smaller mine, governed by the DMR will devalue any property in the long term. Mining is not considered a change in land use and the site will be restored to a grazing unit once mining ceases.



Figure 37: Aerial Photo indicating current illegal mining in close facility to Cosy Corner. Illegal mining has been in operation since 2004.

In terms of noise: the rural nature of the area involved leads the ambient noise levels on average to be below 30 dB. Thus within 100m from the quarry, noise levels will abate to approximately 50-60dB and within 200m to approximately 50dB. Therefore it is expected that noise levels at the closest Cosy Corner residence, which is about 400m away from the site, will preclude any significant impact on residence. Furthermore, no mining will take place over weekends and public holidays, but normal working hours during the week will be applied.

In terms of dust, the report indicated that dust is the most significant impact, due to wind blasting. During the south-easterly winds, which are most frequently experienced in this area, the residence of Cosy Corner will not be in direct line of the wind action, as the wind blows from the south-east into the north-west, and therefore dust will blow away from the Cosy Corner residence, but directly into Mrs Ross residence. However, with north-westerly winds, which are also experienced in this area, the sand blasting might impact on the residence if the wind is more of a northerly wind rather than north-west; nevertheless the impact is listed, but it has also been very successfully proven at other mining sites that wetting/dampening of sand and raising of hessian sheets effectively mitigates windblown sand. All of these mitigation measures have been stipulated in detail in the EMP.

In addition, illegal mining of about 10Ha in extent, operating within closer distance to Cosy Corner residence and which is not applying any mitigation measure to control dust, have never lead to any complaints received from any residence at Cosy Corner. The Department of Mineral Resources (DMR) has to date not received any complaint about dust or noise as a nuisance and/or unbearable to any resident.

Thus if this application is approved, the 1.5Ha mine area situated further from the residence will be regulated by the Department of Mineral Resources (DMR) and control will be exercised, compelling the applicant to put into effect all the mitigation measures. Illegal mining is essentially not governed by an EMP and thus mitigation measures will not be enforce and the DMR has to file a case of illegal mining against such a person/company.

The Cosy Corner access road dispose of a sub-standard tar surface and will not be able to accommodate heavy traffic, as you might be well aware of. Thus access to the site will be from the Lillyvale Road via a gravel servitude road across Mr Lustgarden's farm. The Lillyvale Road is of average to poor standard and is also used by two other mining concerns and it will experience an additional impact on structural integrity and applicant will have to contribute to maintenance.

The Cosy Corner access road dispose of a sub-standard tar surface and will not be able to accommodate heavy traffic, as you might be well aware of. Thus access to the site will be from the Lillyvale Road via a gravel servitude road across Mr Lustgarden's farm. The Lillyvale Road is of average

to poor standard and is also used by two other mining concerns and it will experience an additional impact on structural integrity and applicant will have to contribute to maintenance.

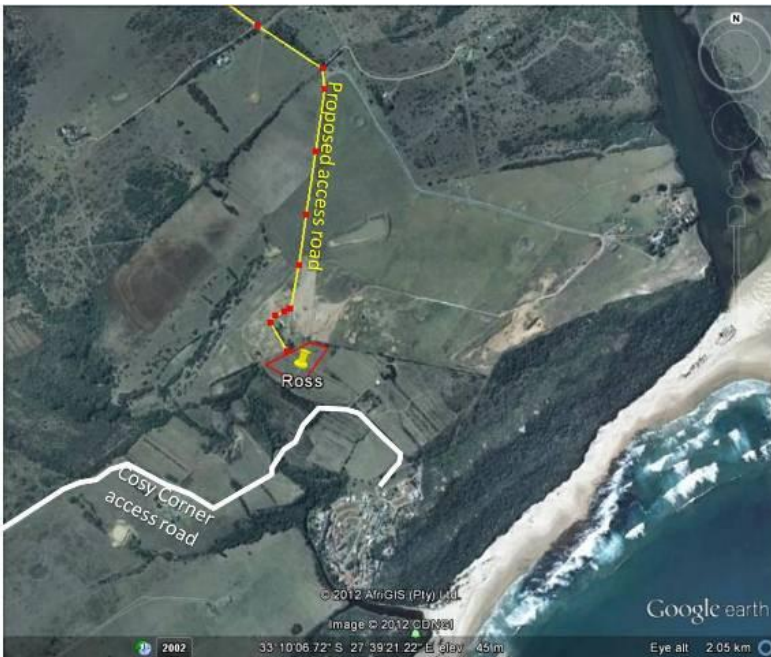


Figure 38: Proposed access road from the mine area is indicated in yellow, the Cosy Corner access road is indicated in white.

There will be thus no additional heavy vehicle traffic on the Cosy Corner access road due to this mining venture. However Mrs Ross and Mr Lustgarden will be directly impacted on, since this access road is on their properties respectively. But, as already indicated, these roads are already in use by other illegal mining companies and to date no complaint has been received from any residence regarding the use of these road by the mining companies.

In terms of the wild life, your attention is drawn to the fact that at this particular site all the original vegetation was long ago disturbed to establish a grazing unit. Vegetation plays an important role in maintaining ecosystems, which in turn plays a major role in hosting fauna and specie diversity. The Cosy Corner area falls within the Subtropical Transitional Thicket. Normally, the thicket habitat poses a definite ecological niche for a variety of animal species: since the canopy provides adequate forage, nesting place and protection for avian fauna, whilst the under storage provide adequate protection and forage for browsers. However, at the mining site, all the vegetation providing this ecological niche was removed to make way for grazing. In fact the site hosts secondary grass land and at certain parts even covered with weeds. Most of the abutting areas also only host secondary grassland and plantation. There are patches in the surrounding area with subtropical thicket, which is also impacted

on through alien vegetation infestation. The picture below indicates the large amount of areas that have been cleared to make way for agriculture and residential development.

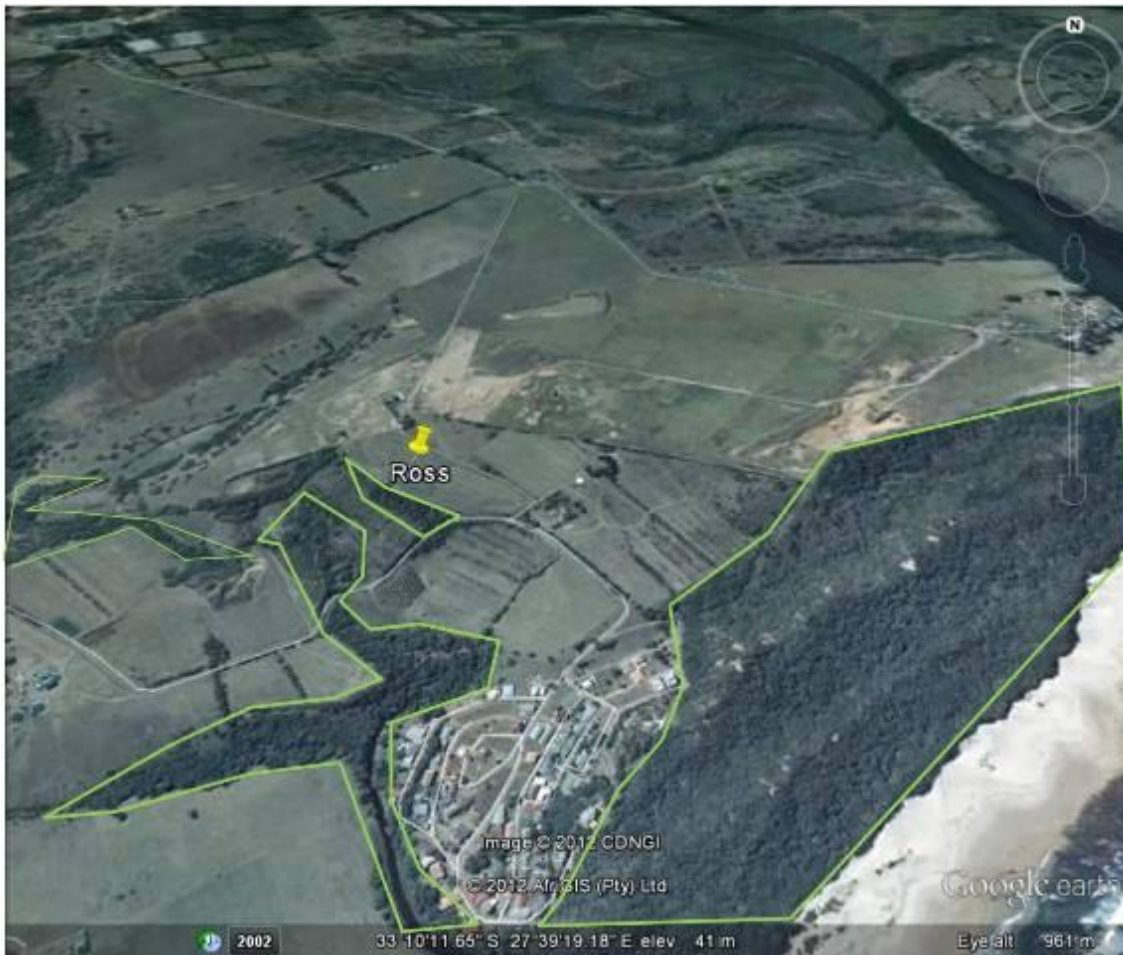


Figure 39: Note the areas surrounded with green highlight have not been cleared for residential development or agriculture while the rest of the surrounding areas have been cleared.

Since the site is 1.5Ha, within an open area already disturbed, any suitable habitat for mammals is considered highly unlikely at the site. It must be emphasized that the mining site might provide feed for some wild animals, but the secondary grassland does not provide habitat for wild animals, except for some small rodents, reptiles, insects, etc. Most of the rare animal's habitats are associated with riverine environs, which preclude their existence in the study site, since the site is on a hill and not within a river environment. Mining would be restricted to a limited area and the slow extraction rate would provide adequate time for slow migration from the affected area and be sustained in the similar adjoining habitats. The patches of Coastal forest left will remain to provide habitat for these animal species and mining will not impact on these habitats. Since this is also a farm land, this area is and will continue to be used to provide feed for cattle, thus this small area to be mined will not be rehabilitated to thicket vegetation but to grazing land. It must also be noted that human activities

such as residential development was established in prime coastal forest compromising a very large section of habitat reserved for these indigenous animals. In addition, illegal mining activities and farming also impacts on the flora and fauna in the area. The fact that you still spot bushbuck is an indication of the animal adapting to the collective impact of human activities.

Once the site has been rehabilitated, the animals will return to site as currently the case. This impact is temporary.

In the Environmental Management Plan (EMP) all mitigation measures have been prescribed to mitigate even the smallest of impacts. If you feel that we have not responded satisfactorily to your objection, please do not hesitate to contact us.

I trust you will find this in order.

Yours sincerely



J. A. van As

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Mrs P Gradwell

P O Box 13

Kidd's Beach

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27 March 2012

RESPONSE TO YOUR OBJECTIONS TO THE MINING OF SAND ON FARM 1090, EAST LONDON.

Your letter dated 22 March 2012 has reference and contents thereof fully noted. Thank you for your prompt response.

All impacts, environmental and social, have been investigated and will be fully captured in the Environmental Management Plan (EMP). Please take note that the report submitted to you is a summary of the environmental investigation to provide you with a better understanding of the impacts that we have identified and the ratings thereof. The Environmental Management Plan (EMP) is the complete document that will be submitted to the Department of the Mineral Resources for their scrutiny and approval/rejection.

The report indicated that dust is the most significant impact, due to wind blasting. During the south-easterly winds, which are most frequently experienced in this area, the residence of Cosy Corner will not be in direct line of the wind action, as the wind blows from the south-east into the north-west, and therefore dust will blow away from the Cosy Corner residence, but directly into Mrs Ross

residence. However, with north-westerly winds, which are also experienced in this area, the sand blasting might impact on the residence if the wind is more of a northerly wind rather than north-west; nevertheless the impact is listed, but it has also been very successfully proven at other mining sites that wetting/dampening of sand and raising of hessian sheets effectively mitigates windblown sand. All of these mitigation measures have been stipulated in detail in the EMP.

In addition, illegal mining of about 10Ha in extent, operating within closer distance to Cosy Corner residence and which is not applying any mitigation measure to control dust, have never lead to any complaints received from any residence at Cosy Corner. The Department of Mineral Resources (DMR) has to date not received any complaint about dust or noise as a nuisance and/or unbearable to any resident.

Thus if this application is approved, the 1.5Ha mine area situated further from the residence will be regulated by the Department of Mineral Resources (DMR) and control will be exercised, compelling the applicant to put into effect all the mitigation measures. Illegal mining is essentially not governed by an EMP and thus mitigation measures will not be enforce and the DMR has to file a case of illegal mining against such a person/company.

In terms of noise: the rural nature of the area involved leads the ambient noise levels on average to be below 30 dB. Thus within 100m from the quarry, noise levels will abate to approximately 50-60dB and within 200m to approximately 50dB. Therefore it is expected that noise levels at the closest Cosy Corner residence, which is about 400m away from the site, will preclude any significant impact on residence. Furthermore, no mining will take place over weekends and public holidays, but normal working hours during the week will be applied.

The Cosy Corner access road dispose of a sub-standard tar surface and will not be able to accommodate heavy traffic, as you might be well aware of. Thus access to the site will be from the Lillyvale Road via a gravel servitude road across Mr Lustgarden's farm. The Lillyvale Road is of average to poor standard and is also used by two other mining concerns and it will experience an additional impact on structural integrity and applicant will have to contribute to maintenance.

The Cosy Corner access road dispose of a sub-standard tar surface and will not be able to accommodate heavy traffic, as you might be well aware of. Thus access to the site will be from the Lillyvale Road via a gravel servitude road across Mr Lustgarden's farm. The Lillyvale Road is of average to poor standard and is also used by two other mining concerns and it will experience an additional impact on structural integrity and applicant will have to contribute to maintenance.

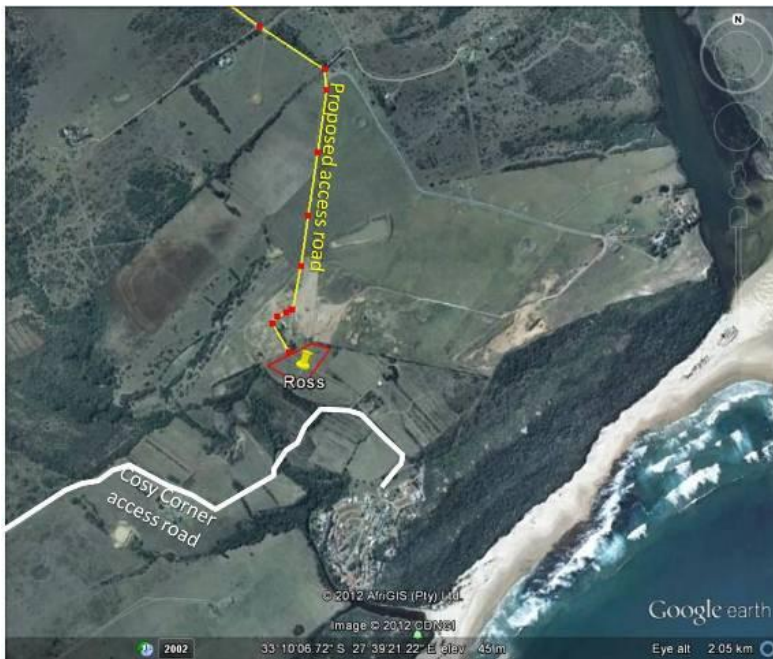


Figure 40: Proposed access road from the mine area is indicated in yellow, the Cosy Corner access road is indicated in white.

There will be thus no additional heavy vehicle traffic on the Cosy Corner access road due to this mining venture. However Mrs Ross and Mr Lustgarden will be directly impacted on, since this access road is on their properties respectively. But, as already indicated, these roads are already in use by other illegal mining companies and to date no complaint has been received from any residence regarding the use of these road by the mining companies.

Devaluing of property might be experienced within the two years that the mine is valid, since people don't necessarily want to buy a house in close proximity to a mine, but when mining is done correctly and governed by the DMR, it will not affect your property value, since this mining venture will be temporary and be rehabilitated. Once the mining has exhausted the minerals in the allocated area or the mining permit period has expired, the mine must be closed. The DMR will only grant closure if the site has been rehabilitated to at least a 70% status and if all the interested and affected parties are satisfied with the rehabilitation. If Mr Ross fails to reach these closure objectives, the DMR will appoint someone to rehabilitate the site and it will be to the cost of the applicant, Mr Ross. This is the procedure that is followed by the DMR.

Since 2004 illegal mining has occurred in the abutting properties to the proposed mining site, to an extent of about 10Ha in size and to date this illegal site is not regulated and rehabilitation is not enforced. There has been no record of property devaluating due to this illegal mining, and it is highly unlikely that a smaller mine, governed by the DMR will devalue any property in the long term.

Mining is not considered a change in land use and the site will be restored to a grazing unit once mining ceases.

In terms of increase crime, there is always a possibility of increase crime associated with the increase of development: as is the case with any additional development to your area, which include residential developing with an increase of construction workers being present in the residential areas, as well as harvest time for farmers, when casual workers are employed on a contract basis. The proposed mining will result in an addition of mostly 2-3 workers on site at any given time. These will include the front-end loader operator, the truck driver and a member of staff performing the rehabilitation work at the site, which in this case will be an existing farm worker for Mr Ross. Furthermore, the workforce will not reside on the mine, but will commute to work every day. Nevertheless, the EMP does provide in house rules and all staff members must adhere to these rules; they include:

- No wandering of any quarry workers on any area outside the quarry area, especially onto the neighbouring property.
- No stock theft or poaching will be tolerated by the workforce and any person found guilty of these transgressions will be removed from the property, dismissed and handed over to the police for sentencing. Landowners will be fully compensated for stock loss.
- No wood will be gathered from outside the mine area and no plant or crop will be removed by the workforce. Any transgressions in this regard will result in disciplinary action being taken and the guilty party being removed from the property.

In the Environmental Management Plan (EMP) all mitigation measures have been prescribed to mitigate even the smallest of impacts. If you feel that we have not responded satisfactorily to your objection, please do not hesitate to contact us.

I trust you will find this in order.

Yours sincerely



J. A. van As

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All impacts, environmental and social, have been investigated and will be fully captured in the Environmental Management Plan (EMP). Please take note that the report submitted to you is a summary of the environmental investigation to provide you with a better understanding of the impacts that we have identified and the ratings thereof. The Environmental Management Plan (EMP) is the complete document that will be submitted to the Department of the Mineral Resources for their scrutiny and approval/rejection.

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residence. Furthermore, no mining will take place over weekends and public holidays, but normal working hours during the week will be applied.

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In terms of increase theft, there is always a possibility of increase crime associated with the increase of development: as is the case with any additional development to your area, which include residential developing with an increase of construction workers being present in the residential areas, as well as harvest time for farmers, when casual workers are employed on a contract basis. The propose mining will result in an addition of mostly 2-3 workers on site at any given time. These will include the front-end loader operator, the truck driver and a member of staff performing the rehabilitation work at the site, which in this case will be an existing farm worker for Mr Ross. Furthermore, the workforce will not reside on the mine, but will commute to work every day. Nevertheless, the EMP does provide in house rules and all staff members must adhere to these rules; they include:

- No wandering of any quarry workers on any area outside the quarry area, especially onto the neighbouring property.

- No stock theft or poaching will be tolerated by the workforce and any person found guilty of these transgressions will be removed from the property, dismissed and handed over to the police for sentencing. Landowners will be fully compensated for stock loss.
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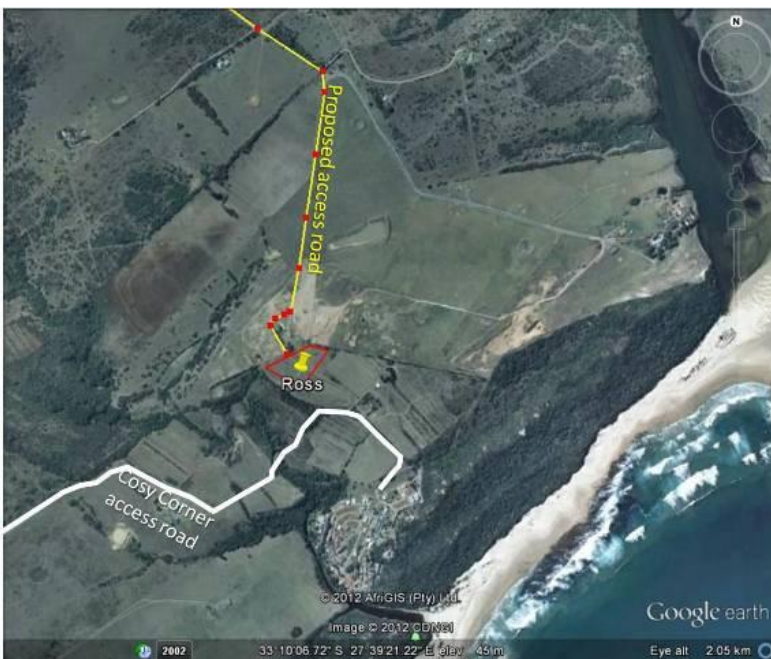


Figure 41: Proposed access road from the mine area is indicated in yellow, the Cosy Corner access road is indicated in white.

There will be thus no additional heavy vehicle traffic on the Cosy Corner access road due to this mining venture. However Mrs Ross and Mr Lustgarden will be directly impacted on, since this access road is on their properties respectively. But, as already indicated, these roads are already in use by other illegal mining companies and to date no complaint has been received from any residence regarding the use of these road by the mining companies.

Devaluating of property might be experience within the two years that the mine is valid, since people don't necessarily want to buy a house in close proximity to a mine, but when mining is done correctly and governed by the DMR, it will not affect your property value, since this mining venture will be temporary and be rehabilitated. Once the mining has exhausted the minerals in the allocated area or the mining permit period has expired, the mine must be closed. The DMR will only grant closure if the site has been rehabilitated to at least a 70% status and if all the interested and affected parties are satisfied with the rehabilitation. If Mr Ross fails to reach these closure objectives, the DMR will appoint someone to rehabilitate the site and it will be to the cost of the applicant, Mr Ross. This is the procedure that is followed by the DMR.

It should be noted that since 2004 illegal mining has occurred in the abutting properties to the proposed mining site, to an extent of about 10Ha in size and to date this illegal site is not regulated and rehabilitation is not enforced. There has been no record of property devaluating due to this illegal mining, and it is highly unlikely that a smaller mine, governed by the DMR will devalue any property. Mining is not considered a change in land use and the site will be restored to a grazing unit once mining cease.



Figure 42: Aerial Photo indicating current illegal mining in close facility to Cosy Corner. Illegal mining has been in operation since 2004.

With the limited extent of the mine (1.5Ha), recharge of the aquifer will sparsely be affected, since the borehole water will only be used for rehabilitation if necessary and for dust suppression on windy days. The increase in water usage will be low at the site. Re-vegetation will also coincide with the rainy seasons to ensure that no extra water is used.

In terms of environmental damage your attention is drawn to the fact that at this particular site all the original vegetation was long ago disturbed to establish a grazing unit. Vegetation plays an important role in maintaining ecosystems, which in turn plays a major role in hosting fauna and specie diversity. The Cosy Corner area falls within the Subtropical Transitional Thicket. Normally, the thicket habitat poses a definite ecological niche for a variety of animal species: since the canopy provides adequate forage, nesting place and protection for avian fauna, whilst the under storage provide adequate protection and forage for browsers. However, at the mining site, all the vegetation providing this ecological niche was removed to make way for grazing. In fact the site hosts secondary grass land and at certain parts even covered with weeds. Most of the abutting areas also only host secondary grassland and plantation. There are patches in the surrounding area with subtropical thicket, which is also impacted on through alien vegetation infestation. The picture below indicates the large amount of areas that have been cleared to make way for agriculture and residential development.

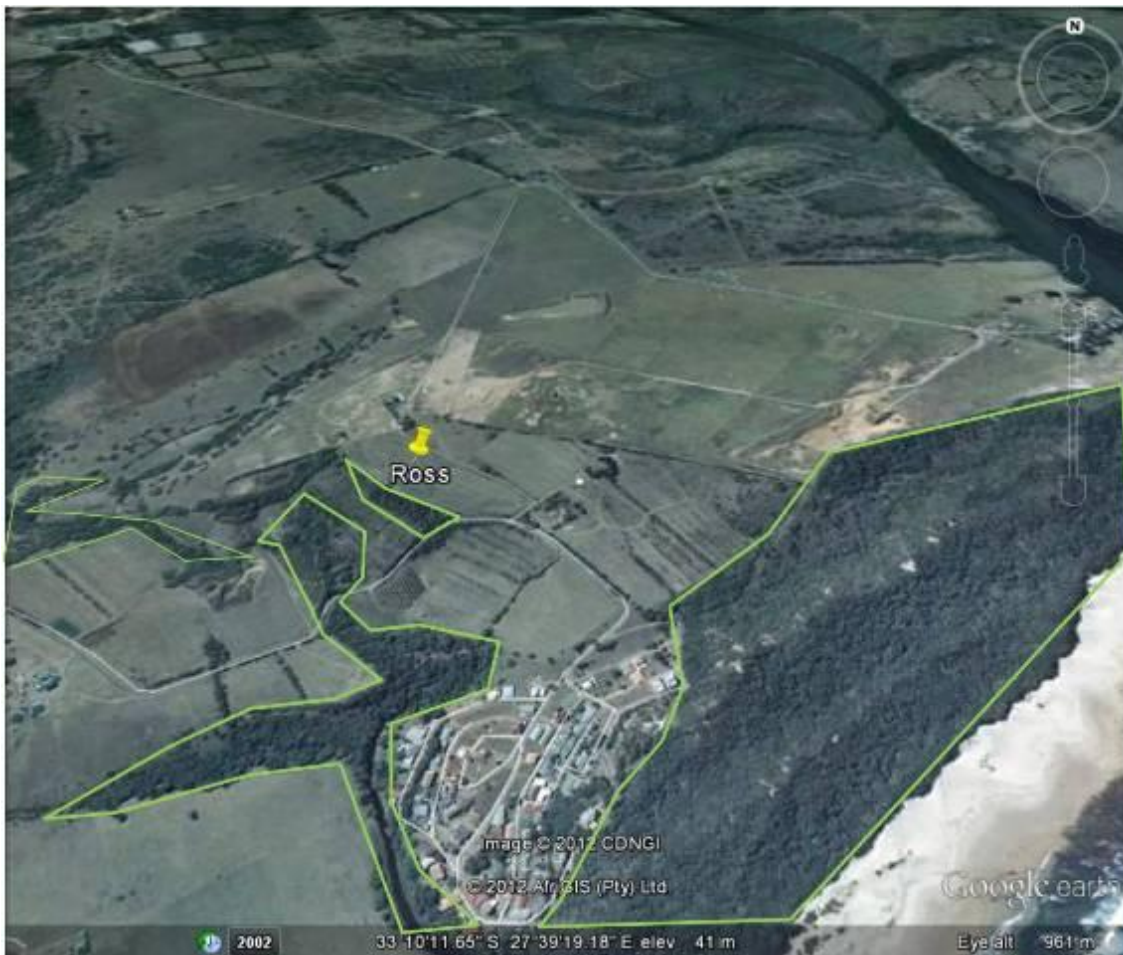


Figure 43: Note the areas surrounded with green highlight have not been cleared for residential development or agriculture while the rest of the surrounding areas have been cleared.

Since the site is 1.5Ha, within an open area already disturbed, any suitable habitat for mammals is considered highly unlikely at the site. It must be emphasized that the mining site might provide feed for some wild animals, but the secondary grassland does not provide habitat for wild animals, except for some small rodents, reptiles, insects, etc. Most of the rare animal's habitats are associated with riverine environs, which preclude their existence in the study site, since the site is on a hill and not within a river environment. Mining would be restricted to a limited area and the slow extraction rate would provide adequate time for slow migration from the affected area and be sustained in the similar adjoining habitats. The patches of Coastal forest left will remain to provide habitat for these animal species and mining will not impact on these habitats. Since this is also a farm land, this area is and will continue to be used to provide feed for cattle, thus this small area to be mined will not be rehabilitated to thicket vegetation but to grazing land. It must also be noted that human activities such as residential development was establish in prime coastal forest compromising a very large section of habitat reserved for these indigenous animals. In addition, illegal mining activities and farming also impacts on the flora and fauna in the area. The fact that you still spot bushbuck is an indication of the animal adapting to the collective impact of human activities.

Once the site has been rehabilitated, the animals will return to site as currently the case. This impact is temporary.

Air pollution will be restricted to dust generated, which has already been discussed. In terms of vehicular emissions: will be related to excavators, one front-end loader, and a few trucks and thus exhaust emissions generated at the site will be insignificant. In addition, people would not reside on the property; therefore smoke generated by cooking fires would not be a consideration. No waste would be burned on site. No other form of chemical air pollution is envisaged. No odours will be generated by the mining operation. Please specify what air pollution you are referring to, if it has not been listed.

In the Environmental Management Plan (EMP) all mitigation measures have been prescribed to mitigate even the smallest of impacts. If you feel that we have not responded satisfactory to your objection, please do not hesitate to contact us.

I trust you will find this in order.

Yours sincerely



J. A. van As

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Mrs S.E. Emslie

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27 March 2012

RESPONSE TO YOUR OBJECTIONS TO THE MINING OF SAND ON FARM 1090, EAST LONDON.

Your email dated 20 March 2012 has reference and contents thereof fully noted. Thank you for your prompt response.

The Cosy Corner access road dispose of a sub-standard tar surface and will not be able to accommodate heavy traffic, as you might be well aware of. Thus access to the site will be from the Lillyvale Road via a gravel servitude road across Mr Lustgarden's farm. The Lillyvale Road is of average to poor standard and is also used by two other mining concerns and it will experience an additional impact on structural integrity and applicant will have to contribute to maintenance.

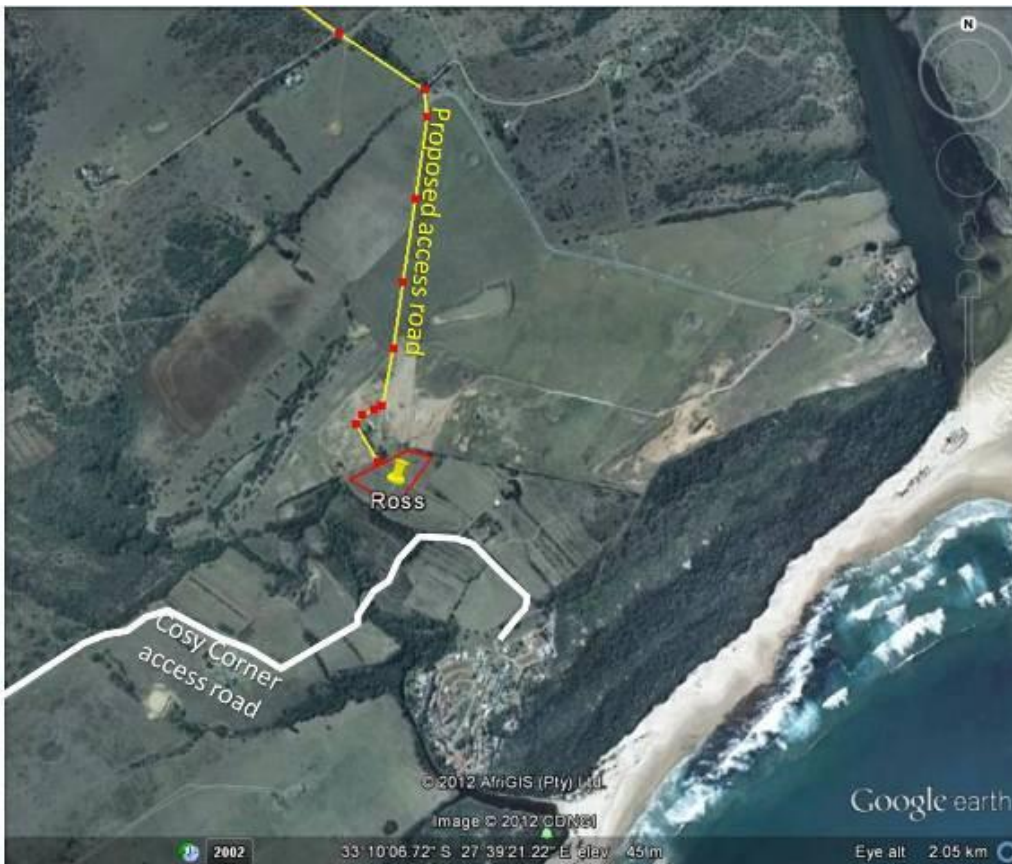


Figure 44: Proposed access road from the mine area is indicated in yellow, the Cosy Corner access road is indicated in white.

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Mr J Smith

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27 March 2012

RESPONSE TO YOUR OBJECTIONS TO THE MINING OF SAND ON FARM 1090, EAST LONDON.

Your letter dated 23 March 2012 has reference and contents thereof fully noted. Thank you for your prompt response and for attending the public meeting held on 26 November 2011.

During the meeting your concerns raised in the letter were addressed, however your comments are still regarded valuable. Please note that all impacts, environmental and social, have been investigated and will be fully captured in the Environmental Management Plan (EMP). The report submitted to you is a summary of the environmental investigation to provide you with a better understanding of the impacts that we have identified and the ratings thereof. The Environmental Management Plan (EMP) is the complete document that will be submitted to the Department of the Mineral Resources for their scrutiny and approval/rejection.

Devaluing of property might be experienced within the two years that the mine is valid, since people don't necessarily want to buy a house in close proximity to a mine, but when mining is done correctly and governed by the DMR, it will not affect your property value, since this mining venture

will be temporary and be rehabilitated. Once the mining has exhausted the minerals in the allocated area or the mining permit period has expired, the mine must be closed. The DMR will only grant closure if the site has been rehabilitated to at least a 70% status and if all the interested and affected parties are satisfied with the rehabilitation. If Mr Ross fails to reach these closure objectives, the DMR will appoint someone to rehabilitate the site and it will be to the cost of the applicant, Mr Ross. This is the procedure that is followed by the DMR.

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In terms of noise: the rural nature of the area involved leads the ambient noise levels on average to be below 30 dB. Thus within 100m from the quarry, noise levels will abate to approximately 50-60dB and within 200m to approximately 50dB. Therefore it is expected that noise levels at the closest Cosy Corner residence, which is about 400m away from the site, will preclude any significant impact on residence. Furthermore, no mining will take place over weekends and public holidays, but normal working hours during the week will be applied.

The Cosy Corner access road consists of a sub-standard tar surface and will not be able to accommodate heavy traffic, as you might be well aware of. Thus access to the site will be from the Lillyvale Road via a gravel servitude road across Mr Lustgarden's farm. The Lillyvale Road is of average to poor standard and is also used by two other mining concerns and it will experience an additional impact on structural integrity and applicant will have to contribute to maintenance.

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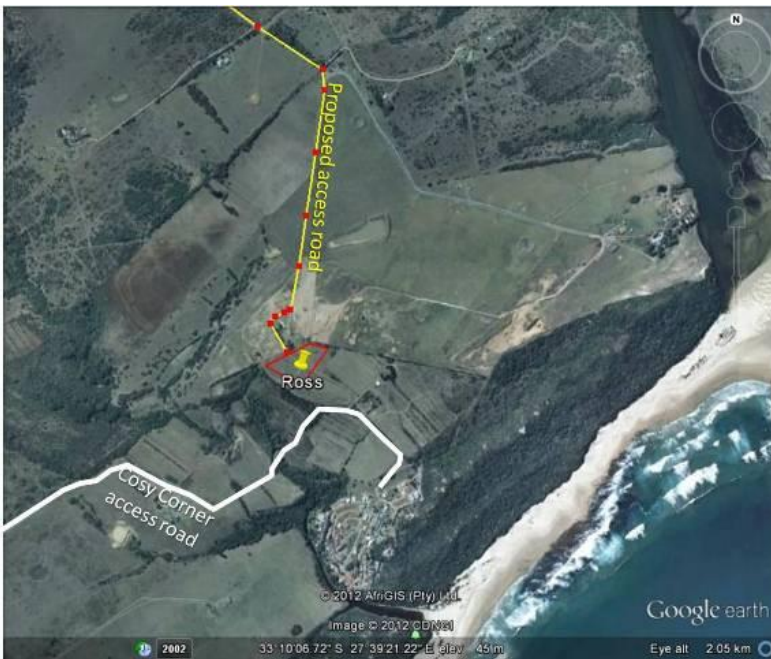


Figure 45: Proposed access road from the mine area is indicated in yellow, the Cosy Corner access road is indicated in white.

Visual impact will be unavoidable, but can be successfully mitigated. Mining will change the texture (vegetated to smooth) and color (green to whitish-grey), which will increase visibility, as you have noted. However, please consider that this application is limited to the mining permit period, which is a two year period with a possibility to renew the permit three times for one year each; thereafter the mine will be closed and the discussed closure process will follow. The mine will also be governed by a legal binding document enforcing rehabilitation. Thus, the Cosy Corner residence that will experience a visual impact to the site will only be subjected to the site for the duration of the mining permit.

The fact that clearing of vegetation for farming purposes is a common phenomenon in your area, does to some extent mitigate the impact considering that only a small portion (1.5Ha) will be disturbed, compared to the farming areas which can consist of areas as large as 5Ha and the illegal mining in your area that has already disturbed about 10Ha. Thus visual impacts will consist of the clearing of the secondary grassland, but with a phase development approach to ensure concurrent rehabilitation. The visual impact could be successfully mitigated over the short term and there will be no long term impact. The site will be restored back to a grazing unit, once mining is completed.

In terms of dust: the report indicated that dust is the most significant impact, due to wind blasting. During the south-easterly winds, which are most frequently experienced in this area, the residence of Cosy Corner will not be in direct line of the wind action, as the wind blows from the south-east into the north-west, and therefore dust will blow away from the Cosy Corner residence, but directly into

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In the Environmental Management Plan (EMP) all mitigation measures have been prescribed to mitigate even the smallest of impacts. If you feel that we have not responded satisfactory to your objection, please do not hesitate to contact us.

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Mr A van der Watt

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Your letter dated 26 March 2012 has reference and contents thereof fully noted. Thank you for your prompt response.

All impacts, environmental and social, have been investigated and will be fully captured in the Environmental Management Plan (EMP). Please take note that the report submitted to you is a summary of the environmental investigation to provide you with a better understanding of the impacts that we have identified and the ratings thereof. The Environmental Management Plan (EMP) is the complete document that will be submitted to the Department of the Mineral Resources for their scrutiny and approval/rejection.

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With the limited extent of the mine (1.5Ha), recharge of the aquifer will sparsely be affected, since the borehole water from Mr Ross's property will only be used for rehabilitation if necessary and for dust suppression on windy days. The increase in water usage will be low at the site. Re-vegetation will also coincide with the rainy seasons to ensure that no extra water is used.

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mine, but will commute to work every day. Nevertheless, the EMP does provide in house rules and all staff members must adhere to these rules; they include:

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- No stock theft or poaching will be tolerated by the workforce and any person found guilty of these transgressions will be removed from the property, dismissed and handed over to the police for sentencing. Landowners will be fully compensated for stock loss.
- No wood will be gathered from outside the mine area and no plant or crop will be removed by the workforce. Any transgressions in this regard will result in disciplinary action being taken and the guilty party being removed from the property.

Please take note that over the past few years sand mining has indeed occurred on both Mrs Ross and Mr Lustgarden properties, directly adjacent to Mr Ross's mining application area and to date no person has objected to these activities. The sand mine on Mr Lustgarden's property is operating without mining authorisation since 2004 and have to date already mined about 10Ha in extent illegally. Mr Ross's application is only for a 1.5Ha area; is following the correct application procedure, and will only be operational for 2 years in accordance with the conditions of the Mineral Resources Development Act, 2002, if approved. Thus, this application will be legal and regulated and should not be misconstrue with the mining area on Mr Lustgarden's property.

Although some of the areas of the illegal mining area have been rehabilitated, there are still large areas that have not been rehabilitated, since this site is not regulated by the Department (DMR) through an approved Environmental Management Plan (EMP). Mr Ross will be governed by the DMR through an EMP: a legal document binding him to rehabilitate the mine area within a certain amount of time and to take responsibility for any environmental damaged caused through mining.



Figure 46: Aerial Photo indicating current illegal mining in close facility to Cosy Corner. Illegal mining has been in operation since 2004.

The problem with illegal mining is the lack of governance and control over such a mine. If any interested and affected parties have a complaint regarding such mining, or environmental damage occur due to such mining, there is no legal document or rehabilitation money binding the company/person mining to rehabilitated or take responsibility and as stated, the DMR has to file a case of illegal mining against such a company/person. Thus restoring environmental and social damage could take years due to legal actions. It is clear that illegal mining poses a great threat to environmental degradation and social impact, especially safety issues. People supporting illegal mining also assist in illegal activities; therefore it is very important to establish a legal mining concern in your area, since it is clear that there is a market for sand.

It is therefore not clear why you feel to object so strongly against a much smaller mining venture that is willing to follow the legal route and commit to rehabilitation, as there is no record of you objecting to the illegal mining. This project has been research, all impacts, definite or potential, have been listed, evaluated and rated. In addition, all mitigation measures have been prescribed to mitigate

even the smallest of impacts. If you still feel like you disagree with any of our assessments and ratings of the impacts, please provide your assessment, supplemented by scientific proof of such an assessment.

If you feel that we have not responded satisfactory to your objections, please do not hesitate to contact us.

I trust you will find this in order.

Yours sincerely



J. A. van As

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27 March 2012

RESPONSE TO YOUR OBJECTIONS TO THE MINING OF SAND ON FARM 1090, EAST LONDON.

Your letter dated 20 March 2012 has reference and contents thereof fully noted. Thank you for your prompt response.

All impacts, environmental and social, have been investigated and will be fully captured in the Environmental Management Plan (EMP). Please take note that the report submitted to you is a summary of the environmental investigation to provide you with a better understanding of the impacts that we have identified and the ratings thereof. The Environmental Management Plan (EMP) is the complete document that will be submitted to the Department of the Mineral Resources for their scrutiny and approval/rejection.

Visual impact will be unavoidable, but can be successfully mitigated. Mining will change the texture (vegetated to smooth) and color (green to whitish-grey), which will increase visibility, as you have noted. However, please consider that this application is limited to the mining permit period, which is a two year period with possibility to renew the permit three times for one year each; thereafter the

mine will be closed, which means that: once the mining has exhausted the minerals in the allocated area or the mining permit period has expired, the mine must be closed. The Department of Mineral Resources (DMR) will only grant closure if the site has been rehabilitated to at least a 70% status and if all the interested and affected parties are satisfied with the rehabilitation. If Mr Ross fails to reach these closure objectives, the DMR will appoint someone to rehabilitate the site and it will be to the cost of the applicant, Mr Ross. This is the procedure that is followed by the DMR. The mine will also be governed by a legal binding document enforcing rehabilitation. Thus, the Cosy Corner residence that will experience a visual impact to the site will only be subjected to the site for the duration of the mining permit.

The fact that clearing of vegetation for farming purposes is a common phenomenon in your area, does to some extent mitigate the impact considering that only a small portion (1.5Ha) will be disturbed, compared to the farming areas which can consist of areas as large as 5Ha and the illegal mining in your area that has already disturbed about 10Ha. Thus visual impacts will consist of the clearing of the secondary grassland, but with a phase development approach to ensure concurrent rehabilitation. The visual impact could be successfully mitigated over the short term and there will be no long term impact. The site will be restored back to a grazing unit, once mining is completed.

Runoff has indeed been identified as a higher impact, as well as erosion due to the slope of the bottom section of the mine area. Therefore the mine plan proposed in the document and the EMP prescribes very strict mine development strategy to protect the site and the stream system outside of the mine area, by diverting run-off from the bare site, through contours, to the south-east of the site into areas that is well established with grassland and well away from the stream environment. This will filter out any possible silt received from the site and effectively mitigate the possible impact on the stream known as Ross's Creek. This strategy will also effectively mitigate any potential erosion that might develop on site, since contours will act as energy breakers and prohibit sheet wash from the site.

Also, the mine will be mined in the alternative slots, as provided in the mine development plan. Once phase 1 is mined out, mining will progress to phase 2. To mitigate the impact of dust on the neighbouring resident and provide ample time for rehabilitation on phases 1 & 2; mining will continue on phase 3, while the first two phases are rehabilitated. While mining phase 4, phase 3 will be rehabilitated (fertilized, seeded and irrigated). While mining phase 5, phase 4 will be rehabilitated, and phase 3 would have established a sufficient grass cover and together with phase 8 (3 m pillar) and phase 6 (which is at this stage still undisturbed), will absorb sheet wash after a rainfall and act as an energy breaker to mitigate erosion on the exposed phase 5. Concurrent rehabilitation must be of

the at most importance and phase 5 must be rehabilitated while mining phase 6, and so on. Please refer to the below mine development plan.

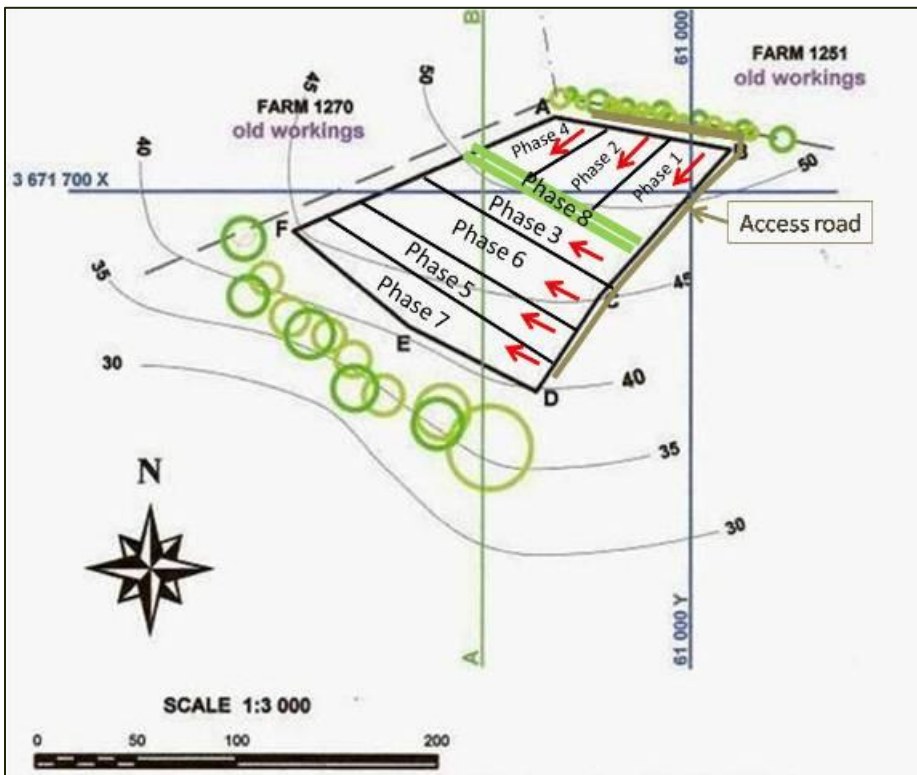


Figure 47: Mine development plan

It is our experience that many of the impacts can be effectively mitigated if the mine development plan is followed correctly and rehabilitation progress as the mine develops. This mine strategy will ensure that the smallest area necessary for mining will be exposed at any given time, while those areas depleted of the mineral will be rehabilitated, ensuring that all impacts are temporary and successfully mitigated.

Stream environments are dynamic and increase in silt would eventually be absorbed in the form of wetland vegetation. The mining area will however be beacons off and no disturbance outside of the mine area will be allowed, as well as the above measures will be implemented, to ensure that silt is not transferred to the stream due to mining.

In terms of dust, the report indicated that dust is the most significant impact, due to wind blasting. During the south-easterly winds, which are most frequently experienced in this area, the residence of Cosy Corner will not be in direct line of the wind action, as the wind blows from the south-east into the north-west, and therefore dust will blow away from the Cosy Corner residence, but directly into

Mrs Ross residence. However, with north-westerly winds, which are also experienced in this area, the sand blasting might impact on the residence if the wind is more of a northerly wind rather than north-west; nevertheless the impact is listed, but it has also been very successfully proven at other mining sites that wetting/dampening of sand and raising of hessian sheets effectively mitigates windblown sand. All of these mitigation measures have been stipulated in detail in the EMP.

In addition, illegal mining of about 10Ha in extent, operating within closer distance to Cosy Corner residence and which is not applying any mitigation measure to control dust, have never lead to any complaints received from any residence at Cosy Corner. The Department of Mineral Resources (DMR) has to date not received any complaint about dust or noise as a nuisance and/or unbearable to any resident.

Thus if this application is approved, the 1.5Ha mine area situated further from the residence will be regulated by the Department of Mineral Resources (DMR) and control will be exercised, compelling the applicant to put into effect all the mitigation measures. Illegal mining is essentially not governed by an EMP and thus mitigation measures will not be enforce and the DMR has to file a case of illegal mining against such a person/company.

In terms of noise: the rural nature of the area involved leads the ambient noise levels on average to be below 30 dB. Thus within 100m from the quarry, noise levels will abate to approximately 50-60dB and within 200m to approximately 50dB. Therefore it is expected that noise levels at the closest Cosy Corner residence, which is about 400m away from the site, will preclude any significant impact on residence. Furthermore, no mining will take place over weekends and public holidays, but normal working hours during the week will be applied.

In terms of increase in crime: there is always a possibility of increase crime associated with the increase of development: as is the case with any additional development to your area, which include residential developing with an increase of construction workers being present in the residential areas, as well as harvest time for farmers, when casual workers are employed on a contract basis. The propose mining will result in an addition of mostly 2-3 workers on site at any given time. These will include the front-end loader operator, the truck driver and a member of staff performing the rehabilitation work at the site, which in this case will be an existing farm worker for Mr Ross. Furthermore, the workforce will not reside on the mine, but will commute to work every day. Nevertheless, the EMP does provide in house rules and all staff members must adhere to these rules; they include:

- No wandering of any quarry workers on any area outside the quarry area, especially onto the neighbouring property.

- No stock theft or poaching will be tolerated by the workforce and any person found guilty of these transgressions will be removed from the property, dismissed and handed over to the police for sentencing. Landowners will be fully compensated for stock loss.
- No wood will be gathered from outside the mine area and no plant or crop will be removed by the workforce. Any transgressions in this regard will result in disciplinary action being taken and the guilty party being removed from the property.

Your comment regarding the other sand mines in the area is well noted. Over the past few years sand mining has indeed occurred on both Mrs Ross and Mr Lustgarden properties, directly adjacent to Mr Ross's mining application area. The sand mine on Mr Lustgarden's property is unfortunately operating without mining authorisation since 2004 and have to date already mined about 10Ha in extent illegally. Mr Ross's application is only for a 1.5Ha area; is following the correct application procedure, and will only be operational for 2 years in accordance with the conditions of the Mineral Resources Development Act, 2002, if approved. Thus, this application will be legal and regulated and should not be misconstrue with the mining area on Mr Lustgarden's property.

Although some of the areas of the illegal mining area have been rehabilitated, there are still large areas that have not been rehabilitated as noted by you, since this site is not regulated by the Department (DMR) through an approved Environmental Management Plan (EMP). Mr Ross will be governed by the DMR through an EMP: a legal document binding him to rehabilitate the mine area within a certain amount of time and to take responsibility for any environmental damaged caused through mining.



Figure 48: Aerial Photo indicating current illegal mining in close facility to Cosy Corner. Illegal mining has been in operation since 2004.

The problem with illegal mining is the lack of governance and control over such a mine. If any interested and affected parties have a complaint regarding such mining, or environmental damage occur due to such mining, there is no legal document or rehabilitation money binding the company/person mining to rehabilitated or take responsibility and as stated, the DMR has to file a case of illegal mining against such a company/person. Thus restoring environmental and social damage could take years due to legal actions. It is clear that illegal mining poses a great threat to environmental degradation and social impact, especially safety issues. People supporting illegal mining also assist in illegal activities; therefore it is very important to establish a legal mining concern in your area, since it is clear that there is a market for sand.

Poaching of animals is a very serious offence and not taken lightly. Therefore indiscriminate hunting/trapping/poaching will not be allowed and quarry staff is not allowed to wander off site. As already indicated a very small workforce will be employed and will not camp at the site. Also the applicant will take full responsibility for any animal that is proved to be killed by members of quarry

staff. Strict control measures will be put in place and severe penalties will be applicable if any animal on site is poached.

In the Environmental Management Plan (EMP) all mitigation measures have been prescribed to mitigate even the smallest of impacts. If you feel that we have not responded satisfactory to your objection, please do not hesitate to contact us.

I trust you will find this in order.

Yours sincerely



J. A. van As

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27 March 2012

RESPONSE TO YOUR OBJECTIONS TO THE MINING OF SAND ON FARM 1090, EAST LONDON.

Your letter dated 22 March 2012 has reference and contents thereof fully noted. Thank you for your prompt response.

All impacts, environmental and social, have been investigated and will be fully captured in the Environmental Management Plan (EMP). Please take note that the report submitted to you is a summary of the environmental investigation to provide you with a better understanding of the impacts that we have identified and the ratings thereof. The Environmental Management Plan (EMP) is the complete document that will be submitted to the Department of the Mineral Resources for their scrutiny and approval/rejection.

Air pollution will be restricted to dust generated, which will be discussed later. In terms of vehicular emissions: will be related to excavators, one frond-end loader, and a few trucks and thus exhaust emissions generated at the site will be insignificant. In addition, people would not reside on the property; therefore smoke generated by cooking fires would not be a consideration. No waste would

be burned on site. No other form of chemical air pollution is envisaged. No odours will be generated by the mining operation.

In terms of dust: the report indicated that dust is the most significant impact, due to wind blasting. During the south-easterly winds, which are most frequently experienced in this area, the residence of Cosy Corner will not be in direct line of the wind action, as the wind blows from the south-east into the north-west, and therefore dust will blow away from the Cosy Corner residence, but directly into Mrs Ross residence. However, with north-westerly winds, which are also experienced in this area, the sand blasting might impact on the residence if the wind is more of a northerly wind rather than north-west; nevertheless the impact is listed, but it has also been very successfully proven at other mining sites that wetting/dampening of sand and raising of hessian sheets effectively mitigates windblown sand. All of these mitigation measures have been stipulated in detail in the EMP.

In addition, illegal mining of about 10Ha in extent, operating within closer distance to Cosy Corner residence and which is not applying any mitigation measure to control dust, have never lead to any complaints received from any residence at Cosy Corner. The Department of Mineral Resources (DMR) has to date not received any complaint about dust or noise as a nuisance and/or unbearable to any resident.

Thus if this application is approved, the 1.5Ha mine area situated further from the residence will be regulated by the Department of Mineral Resources (DMR) and control will be exercised, compelling the applicant to put into effect all the mitigation measures. Illegal mining is essentially not governed by an EMP and thus mitigation measures will not be enforce and the DMR has to file a case of illegal mining against such a person/company.

In terms of noise: the rural nature of the area involved leads the ambient noise levels on average to be below 30 dB. Thus within 100m from the quarry, noise levels will abate to approximately 50-60dB and within 200m to approximately 50dB. Therefore it is expected that noise levels at the closest Cosy Corner residence, which is about 400m away from the site, will preclude any significant impact on residence. Furthermore, no mining will take place over weekends and public holidays, but normal working hours during the week will be applied.

Devaluating of property might be experienced within the two years that the mine is valid, since people don't necessarily want to buy a house in close proximity to a mine, but when mining is done correctly and governed by the DMR, it will not affect your property value, since this mining venture will be temporary and be rehabilitated. Once the mining has exhausted the minerals in the allocated area or the mining permit period has expired, the mine must be closed. The DMR will only grant

closure if the site has been rehabilitated to at least a 70% status and if all the interested and affected parties are satisfied with the rehabilitation. If Mr Ross fails to reach these closure objectives, the DMR will appoint someone to rehabilitate the site and it will be to the cost of the applicant, Mr Ross. This is the procedure that is followed by the DMR.

Since 2004 illegal mining has occurred in the abutting properties to the proposed mining site, to an extent of about 10Ha in size and to date this illegal site is not regulated and rehabilitation is not enforced. There has been no record of property devaluating due to this illegal mining, and it is highly unlikely that a smaller mine, governed by the DMR will devalue any property in the long term. Mining is not considered a change in land use and the site will be restored to a grazing unit once mining ceases.

The Cosy Corner access road consists of a sub-standard tar surface and will not be able to accommodate heavy traffic, as you might be well aware of. Thus access to the site will be from the Lillyvale Road via a gravel servitude road across Mr Lustgarden's farm. The Lillyvale Road is of average to poor standard and is also used by two other mining concerns and it will experience an additional impact on structural integrity and applicant will have to contribute to maintenance.

There will be thus no additional heavy vehicle traffic on the Cosy Corner access road due to this mining venture. However Mrs Ross and Mr Lustgarden will be directly impacted on, since this access road is on their properties respectively. But, as already indicated, these roads are already in use by other illegal mining companies and to date no complaint has been received from any residence regarding the use of these roads by the mining companies.

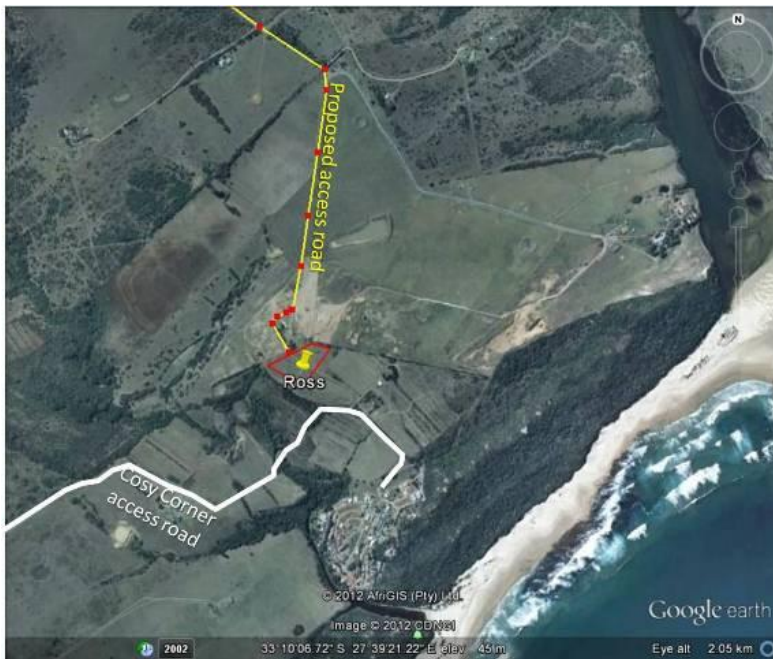


Figure 49: Proposed access road from the mine area is indicated in yellow, the Cosy Corner access road is indicated in white.

Please clarify your statement in paragraph 3, as it is unclear what your objection is. If you are referring to visual impact, please consider that this application is limited to the mining permit period, which is a two year period with a possibility to renew the permit three times for one year each; thereafter the mine will be closed and the discussed closure process will follow. The mine will also be governed by a legal binding document enforcing rehabilitation. Thus, the Cosy Corner residence that will experience a visual impact to the site will only be subjected to the site only for the duration of the mining permit.

Mining will change the texture (vegetated to smooth) and color (green to whitish-grey), which will increase visibility, but the fact that clearing of vegetation for farming purposes is a common phenomenon, does to some extent mitigate the impact. Thus visual impacts will consist of the clearing of the secondary grassland. Also, considering that only a small portion (1.5Ha) will be disturbed, in a phase development approach to ensure concurrent rehabilitation, the visual impact could be successfully mitigated over the short term and there will be no long term impact. The site will be restored back to a grazing unit, once mining is completed. The site is also effectively screened through the topography and the vegetation screen to the south of the site from any public road.

In the Environmental Management Plan (EMP) all mitigation measures have been prescribed to mitigate even the smallest of impacts. If you feel that we have not responded satisfactorily to your objection, please do not hesitate to contact us.

I trust you will find this in order.

Yours sincerely

A handwritten signature in black ink, appearing to read 'J. A. van As', written in a cursive style.

J. A. van As

STELLENRYCK ENVIRONMENTAL SOLUTIONS

APPENDIX D: ARCHAEOLOGY REPORT

The report is being finalised and will be submitted to the DMR once completed.