

This Section of the report provides general background to the company, the mine and its regional setting. A description of the mining and processing activities is provided in Section A2.

1. APPLICANT INFORMATION

1.1 Name and Address of Responsible Person

Mrs G Randall
General Manager

Independent Crushers cc
5 Leo Laden Street
WILSONIA

P O Box 1765
EAST LONDON
5200

Tel: (043) 7451014
Fax: (043) 745 1245

1.2 Name and Address of Mineral Rights Holder

Leo Trust
5 Leo Laden Street
WILSONIA

P O Box 1765
EAST LONDON
5200

Tel: (043) 7451014
Fax: (043) 745 1245

1.3 Name and Address of Applicant for Mining Authorisation

Independent Crushers cc
5 Leo Laden Street
WILSONIA

P O Box 1765
EAST LONDON
5200

Tel: (043) 7451014
Fax: (043) 745 1245

Figure 1 Locality Plan

1.4 Name and Address of Land Owner

Leo Trust
5 Leo Laden Street
WILSONIA

P O Box 1765
EAST LONDON
5200

Tel: (043) 745 1014
Fax: (043) 745 1245

1.5 Regional Setting

1.5.1 Magisterial District

Buffalo City Municipality

1.5.2 Direction and Distance to Neighbouring Towns

Approximately 25km from East London, 30km from King Williamstown.

1.5.3 Surface Infrastructure

Access Roads, Crusher Plant, Power supply line, Offices, Weighbridge, Ablution facilities, 80 000l water tank.

1.5.4 Presence of Servitudes

Eskom Powerline servitude (33m)

1.5.5 Land Tenure and use of immediate adjacent Land

State-owned land. Exolweni Village

1.5.6 Name of River Catchment

Nahoon River

2. DESCRIPTION OF PROJECT

2.1 Surface Infrastructure

Refer to Drawing 01 for surface infrastructure

2.1.1 Roads, Railways and Powerlines

- Gravel access road / Haul road to quarry.
- Eskom 66KVA line across southern side of the property.
- Eskom 22KVA supply line to Crusher Plant.

There are no railway lines on the property.

2.1.2 Solid Waste Management Facilities

There are no Solid Waste Management Facilities on site. Nearest facility will be the Roundhill Landfill Site, due for commissioning in 2004.

2.1.3 Water Pollution Management Facilities

Septic tanks for sewage treatment.

2.1.4 Potable Water

Potable water is currently supplied by tanker from Municipal Supply in Wilsonia. A Water mains direct to the plant will be laid on from the Exolweni Village supply. This is due for completion by the end September 2003.

2.1.5 Process water

See above

2.1.6 Mineral Processing Plant

Dry crushing and screening plant with mist spray dust suppression, consisting of the following components:

- Telsmith 3042 jaw crusher.
- 48' Simon's cone crusher.
- 36' Telsmith Cone crusher.
- 805 Hazemag rotary impactor.
- Milestone 9600 vertical shaft impactor
- 16 conveyer belts
- 2 screening structures.

2.1.7 Workshops, Administration and other buildings

- Computerised weighbridge.
- Dispatch office
- Production Office
- Change room with toilet facilities and showers
- Storeroom
- 2 x containers for storage and workshop
- 2 x sub stations
- double carport

2.1.8 Housing

There is no housing on site

2.1.9 Transport

Only road transport is used. Vehicles consist of the following:

- 3 x LDV bakkies
- 2 x excavators
- 2 x front end loaders
- 1 x Bell 25C dump truck
- 11 x haul trucks

2.1.10 Water Balance Diagram

A water balance diagram is provided in Figure 2, below.

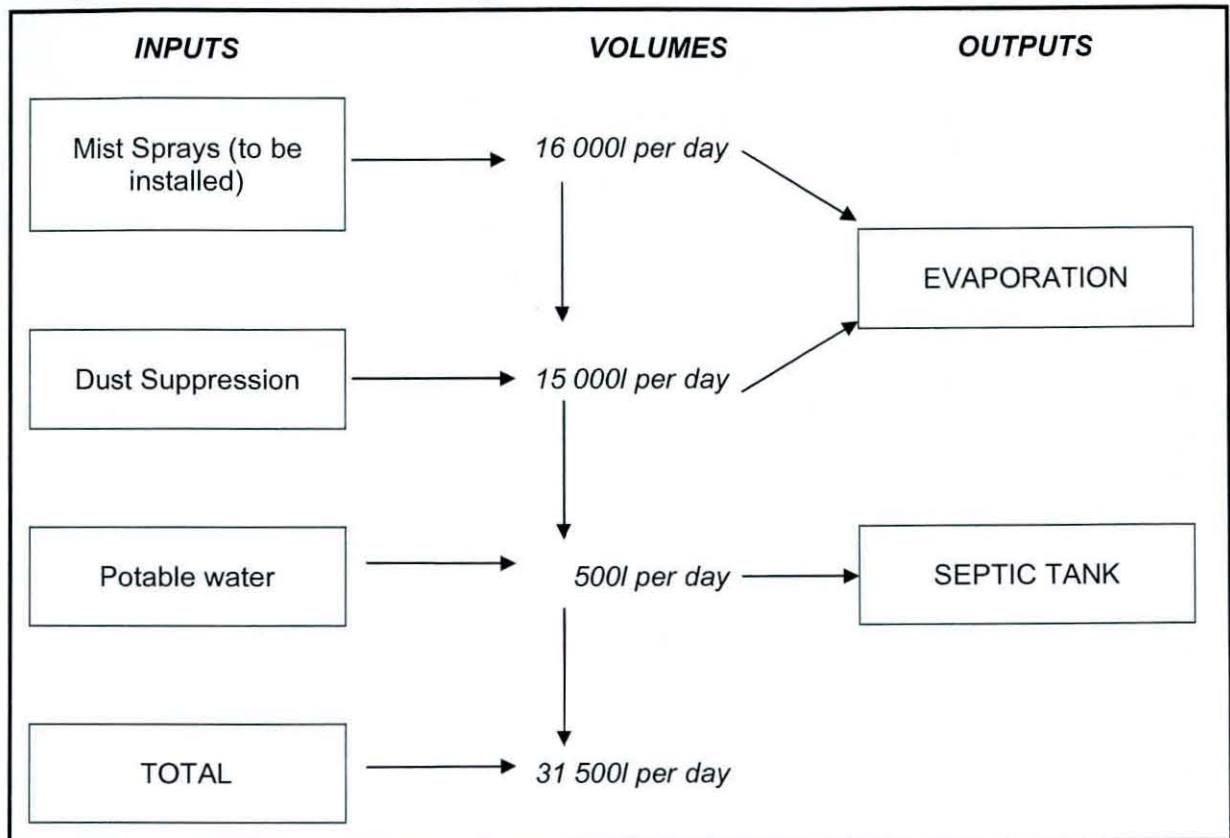
2.1.11 Disturbances of Water Courses

There are currently three stream crossings, one on the main access road, one accessing the sabunga borrowpit and one accessing the old scrap storage area (Refer to Drawing 01 in Appendix A). The crossing to sabunga Borrowpit will be removed as a matter of priority.

2.1.12 Stormwater

There is currently no stormwater management in place.

Figure 2 Water Balance Diagram



2.2 Construction Phase

The quarry is already operating. No further construction is envisaged.

2.3 Operational Phase

2.3.1 Soil Utilisation Guide

- Topsoil stripped and stockpiled in designated areas shown in Drawing 02. Quantities of topsoil available on the site are estimated to be 8000 tonnes.
- Overburden consisting of decomposed dolerite and boulders is removed and stockpiled separate to the topsoil.

2.3.2 Mine Surface Layout

Refer to Drawing 01.

2.3.3 Mining Operations

Unweathered dolerite is mined from within the existing open cast quarry area. Following the removal and stockpiling of topsoil and weathered overburden, the active face is drilled and blasted to form a series of 9mx9m benches. Rock is loaded onto a dumper truck by an excavator which transports the material a short distance to the primary crusher. The current production rate is 15 000 tonnes per month.

Weathered dolerite, or sabunga, is mined from an open cast pit using an excavator, from where it is loaded onto haul trucks for transport to site. No processing takes place. The current production rate is 2 000 tonnes per month.

A mining development plan, which indicates the proposed mining extensions, is provided in Drawing 02. It is the intention to continue with western extent of the existing mining face, which will be benched back to within 80m of the Eskom Powerline. Following this, the area between the crusher plant and the existing face will be stripped of overburden and mined down to the level of the primary crusher.

Sabunga will be mined from within the designated area indicated in Drawing 02. Vegetation will be removed and topsoil stripped and stockpiled. The back face will be benched for stability.

2.3.4 Mineral Processing

Mineral processing consists of a physical crushing of the rock to a range of sizes used in the construction industry. The crushing plant consists of 5 crushing and 2 screening phases. The screened product ranges from dust to base course (or crusher-run). Water is used for dust suppression only. No chemicals are used in the process.

2.3.5 Plant Residue Disposal

Dust is the only plant residue. Dust suppression will be more effective once mist sprays are installed. There are no tailings or discard products associated with the process.

2.3.6 Transport

Transport from rock face to crusher plant is via a dump truck. Transport from stockpile to sites is via Haul Trucks.

2.3.7 Proposed River Diversions

There are no proposed or existing river diversions

2.4 Decommissioning and Closure

Although decommissioning of the entire site will only take place once all permitted resources have been exhausted, it is the intention to undertake as much rehabilitation and closure of mined- out areas as possible during the life of the mine.

A detailed schedule of activities to be undertaken during the next 10 years, and after mine closure, is provided in Section B4.

Final decommissioning of the site will consist of the following activities:

- Decommissioning and removal of plant, offices, water tanks, weighbridge, including concrete slabs.
- Removal of all scrap from the site
- Removal of all stone stockpiles and cleaning of the site.
- Ripping of all hardened surfaces, including haulroads
- Covering of all bare rock surfaces, including benches, with overburden.
- Top dressing of all surfaces
- Hydroseeding with indigenous grass mix and planting of indigenous seedlings.

It is the intention to return the entire area to natural valley thicket.

PART B: ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

The Environmental Management Programme as set out in this part of the document is legally binding in terms of the Minerals Act of 1991 and its Regulations as amended by Act 103 of 1993.

1 CONSTRUCTION PHASE

The quarry is already operating. Since no further construction is envisaged, this section is not relevant.

2 OPERATIONAL PHASE

2.1 *Geology*

Considering the nature of the activity, impact on the geology is unavoidable. However, the following measures will be taken to ensure that this impact is minimised:

- All oversized rocks and boulders which cannot be crushed will be used to fill up voids left by the mining activities.
- The mining areas will be clearly designated. No mining will be undertaken in areas where the reserves have not been fully proven, therefore preventing any unnecessary and wasteful mining.

2.2 *Topography*

The topography is generally another unfortunate causality of open cast mining methods. The original shape of the hillside has been severely altered by mining activities to date, and this will continue as the mine develops. Although this impact is unavoidable and permanent, it will be mitigated by the following means:

- Quarry faces will be benched with 9 m high x 9 m wide benches.
- The top 9m will be graded to a 1:3 slope
- The sharp, harsh profile of the benches will be softened by backfilling with waste rock and overburden.
- The back face of the Sabunga Borrowpit will be benched and shaped to resemble natural contours.
- The old sabunga pit to the east of the property will be filled with oversized waste rock and overburden.

2.3 Soils

Topsoil is a precious resource which must be preserved and protected for use during rehabilitation. The following management measures will be implemented:

- Topsoil will be stripped from all mining areas, and surfaces which will be compacted or covered during the course of mining operations, eg stockpile areas, workshops, offices, roads etc
- The A-horizon (dark brown, humic-rich topsoil) will be stripped and stockpiled in designated stockpile areas.
- Sub-soil will be stripped and stockpiled in a similar fashion separate to the A-horizon.
- Topsoil stockpiles will consist of uncompacted heaps not exceeding 1.5m in height.
- Topsoil stockpiles will be vegetated with indigenous species in order to maintain biological activity and viability in the long term.
- Topsoil stockpiles will be protected from erosion through the placement of stormwater diversion berms on the upslope side of the heaps.

An audit will be undertaken to measure the volume of topsoil available in existing stockpiles on the site and the volume which will be stripped during further mining operations. A calculation will be made of the required volumes for final rehabilitation of the site. Should there be a deficit, an alternative sources (eg from construction sites) will be identified and the topsoil brought onto site and stockpiled for use in the final rehabilitation.

2.4 Land Capability

The land capability for the area is currently regarded as natural bush. The site will be rehabilitated and revegetated to facilitate the return of indigenous valley bushveld. Should an alternative end use be identified before mine closure, eg township development, then the EMPR will be altered accordingly.

2.5 Natural vegetation/plant life

The vegetation on the site is characterised as "Valley Thicket", which consists of a very dense thicket of woody shrubs and trees. Commonly occurring species include the Kooboo-berry *Cassine aethiopica*, *Thornfern Aspararus* spp., *Plumbago auriculata*, *Dovyalis* spp., *Diospyros dichrophylla*, *Euphorbia triangularis* and *E. tetragonal*. Although there are no protected, endemic or rare species found on the property, the vegetation type as a whole is becoming increasingly threatened through intensive and poorly managed farming practices.

Specific threats to the vegetation on the property are posed by the following activities:

- Wood collecting by neighbouring communities
- Clearing for mining operations
- Invasion of alien species, such as black wattle, the castor oil bush and *Syringa* spp.
- Pollution and sedimentation of drainage lines may effect riverine trees

As mentioned above, there is prevalence of alien invasive species in disturbed areas around the mining and processing areas. These include the following:

- Castor Oil Plant (*Ricinis communis*)
- *Syringa* spp
- Peanut butter cassia (*Cassia didymobotria*)

Black Wattle (*Acacia maerensii*) is widespread throughout the area and occurs well within the Valley Thicket. *Lantata camara* has not as yet got a foothold on the property, although it is prevalent in the general vicinity of the study area

The following measures will be taken to prevent the spread of alien species and to ensure the successful revegetation of indigenous species:

- An Alien Plant Control Programme will be introduced. Although alien eradication has been practiced intermittently at the quarry, this will be formalised with assistance from the Department of Agriculture and the Working for Water Programme.
- The programme will concentrate initially on the riverine areas, clearing streambeds of syringe and castor oil plant.
- Black wattle will be harvested, taking care not to spread the seeds, and made available to the local community free of charge as a fuel source. This hopefully will discourage them from harvesting indigenous hardwoods from the thicket.
- Mined out areas and spoil sites will be covered with overburden, topsoiled and hydroseeded with an indigenous seed mix. The composition of the mix will be determined in consultation with local suppliers, and will contain fast growing pioneer species, which will bind the soil prior to the establishment of natural bush species.
- Indigenous tree seedlings, such as the *Plumbago*, will be hand planted across rehabilitated areas.
- Regular watering will be undertaken to ensure that grass becomes established and tree seedlings take root and develop.

2.6 **Animal Life**

Indigenous mammal life on the site and its immediate surrounds is likely reduced to small rodents, reptiles (lizards, skinks etc) and birds due to the level of activity, habitat disturbance and noise. There are no protected or endangered species likely affected by the current and proposed operations. The two streams which confluence below the stockpile area are not likely to support a rich and varied animal life as these have been highly impacted by mining activities.

The following measures will be taken to protect animal species and existing habitat, and to reinstate mining areas on closure:

- No hunting or trapping will be allowed on the property
- Mining areas will be clearly demarcated with white-painted rocks. All areas outside of these rocks will be placed out of bounds.
- Fires will not be allowed outside of authorised areas.
- Indigenous vegetation will be re-established as described above.
- Riverine habitats will be re-instated as discussed in the following section

2.7 **Surface water**

Surface water sources in the area consist of two un-named tributaries of the Rwantsa River, which feeds into the Nahoon River. The tributaries are perennial. The western tributary is dammed above the main access road crossing. The banks of the streams have been severely impacted by the mining operations, mainly in the vicinity of the Sabunga Borrowpit and the Stockpile area. Oversized boulders have been placed in the stream to allow for a road crossing to the borrowpit. This will be removed shortly. The banks of the streams have been encroached on by the platform created for stockpiling of crushed stone. A low berm of waste stone and dust has been created around the rim of stockpile area along the eastern side. Fine sediment, possibly crusher dust, has been spilt over the berm, smothering vegetation and impacting on the stream bed. Surface water quality has not been tested.

The following measures will be taken in an attempt to rectify the situation:

- A stormwater management system will be designed and put in place, particularly around the plant and stockpile area.
- A low berm will be pushed up around the entire rim of the stockpile/plant area, topsoiled and vegetated.
- A line of white-painted rocks will be placed inside of the berm indicating the area of operation, and that which is out of bounds for any mining activity.

- A 20m³ concrete-lined sump will be constructed at the lowest point of the platform, near the confluence of the two tributaries.
- The sump will be cleared of sediment on a regular basis, and the sediment disposed of in the old borrowpit to the east of the mining area.
- An excavator will be used to clean up the river bed of sediment, stone and rocks as far as possible. Hand labour with shovels and wheel barrows will be used to remove sediment from more inaccessible areas.
- The outer slopes of the platform, which border on the streams, will be covered with overburden, topsoil and allowed to revegetated with indigenous species.
- The alien control programme will focus on the eradication of alien species from the river beds and the prevention of any reoccurrence.
- Stockpiling of stone will only be allowed at a distance further than 4m from the berm.
- The 2nd crossing created to access the borrowpit will be removed and the banks reinstated. All boulders will be used to fill voids within the borrowpit.

2.7.1 Water quality

Water quality has not been tested. However, due to the impacts described in the section above, stream water is likely to have a high TDS, particularly after heavy rainfall events when runoff from the stockpile area enters the drainage lines.

Other threats to water quality include hydrocarbon spillage and sewage. It should be noted that no diesel is stored on site. The diesel bowser is brought on site daily to refuel all vehicles

- Sufficient ablution facilities will be provided at the plant site, and at each of the mining sites. Any temporary facilities, such as portaloos, will be emptied on a regular basis and the contents disposed of at a permitted sewage treatment works.
- All regular servicing of vehicles will take place at the workshops in Wilsonia except for tracked vehicles which are serviced on site using drip trays. Used oil is taken to the workshop for disposal.
- All vehicles will be kept in good working order to minimise the chance of emergency repairs.
- Drip trays will be kept on site and used to collect oil in the event of emergency repairs.

- A supply of commercially available absorbent material, such as "Spillsorb" will be kept on site, and used in the event of spillages.
- All scrapped equipment and vehicles will be removed from the site and sold to a scrap dealer for recycling.
- A stormwater management system will be put in place as described in the section above.
- Care will be taken in the refuelling to vehicles to ensure that spillage is minimised.
- An emergency action plan for spillages will be drawn up and communicated to staff through the environmental, health and safety awareness programme.

2.7.2 Water Balance

- Water usage will be monitored
- Water used in the mist sprays for dust suppression will be lost due to evaporation. No runoff from processing is expected.

2.7.3 Stormwater

It is important in the operation of the mining area to separate the clean water runoff and the dirty water runoff – ie, that which originates from within the mining area and as a result has a high sediment load with possible pollutants. This is achieved by implementing the following system:

- Diversion berms will be placed upslope of the borrowpit mining area to divert stormwater runoff away from the active mining area as shown in Drawing 02.
- Diversion berms will be placed downslope of mining areas to contain dirty water runoff on the site and to channel it into a sump.
- The sump will be cleaned regularly and the sediment disposed on in old mining voids.

2.7.4 Surface Rehabilitation

Surface rehabilitation will be undertaken in order to reduce surface runoff and stabilise the surface through revegetation thereby reducing sediment loads. The steps taken towards surface rehabilitation have been described in detail in various sections of this chapter.

2.7.5 Requirements of other surface water users

The streams will be cleaned up, the banks stabilised and further impact on the water quality prevented, in order to ensure that downstream water users are not impacted by the mining operations.

2.7.6 River diversions

There are no river diversions required.

2.8 **Groundwater**

The operations do not impact directly on groundwater levels. However pollution control measures described above under Section 2.7.1 will be put in place to protect groundwater quality as much as that of the surface water. No groundwater abstraction takes place on the site.

2.9 **Air Quality**

Air quality within the mining and processing area is monitored by an independent body every three months, as per the requirements of the Mine Health and Safety Regulations.

The following measures are in place to reduce the impact of dust and to monitor for possible effects:

- Dust suppression takes place daily on all haul roads.
- Mist sprays will shortly be provided at all crushing points on the plant
- Dust points are generally protected by dust hoods.
- Crushers are fed via chutes to reduce dust.
- Dust masks are provided to all mine personnel which are exposed to dust.
- Safety and Health signage indicating the use of dust masks and other protective equipment is visible throughout the plant.
- A comprehensive safety programme will be introduced and applied to all existing and new staff.
- Lung Function tests are undertaken on all exposed staff on a regular basis. The company employs a fulltime nurse who visits the site every second Thursday for medical checkups.
- Each employee undergoes a full medical on an annual basis.

2.10 Noise

- Noise levels are monitored on a quarterly basis by Ecoserve. A copy of a recent report is included in Appendix F.
- Hearing protective devices are provided and used in noise areas which exceed the level of 85dB
- Safety and Health signage indicating the use of Hearing Protective Devices and other protective equipment is visible throughout the plant.
- A comprehensive safety and health programme will be introduced and applied to all existing and new staff.

2.11 Sensitive Landscape

The quarry is located in what may be considered as a sensitive landscape as it is highly visible from a National Road. Mitigation measures to minimise the visual impact as discussed in the section below.

2.12 Visual Impacts

The emphasis of the mine development plan to be applied for the next 10 years is on ultimately minimising the visual impact of the quarry once final closure takes place and rehabilitation has been completed. Located only 1200m from the N2, mining operations are, and will continue to be, highly visible to motorists on the east bound lanes.

The following measures will be implemented during the life of mine and on closure to ensure that the visual impacts are minimised:

- All loose, oversized boulders will be cleared from the mining sites and dumped in the old sabunga borrowpit to the east of the plant. Overburden will be placed on top of the boulders, and the site will ultimately be topsoiled and revegetated.
- Overburden will be placed over boulders which have been dumped over the bank to the west of the mining area, towards the access road. These boulders are on a steep slope and not accessible for removal. The slope will be topdressed and hydroseeded.
- The current mining face will be developed along the western side, towards the powerline. No further mining will take place along the eastern edge, and more visible side, of the existing face.
- The back face on the sabunga borrowpit will be benched and rehabilitated as above.
- All scrap will be removed from the site for recycling.

- All domestic waste will be collected in rubbish bins which are scavenger proof. The bins will be emptied on a regular basis and the waste disposed of at a registered solid waste landfill site.
- No burning of waste, tyres etc will be allowed on site.
- The exposed benches of the quarry will face towards the north, and therefore away from the N2, thereby reducing the harsh visual impact of rock faces.
- Final rehabilitation of benches as described in Section 2.2 above will allow for the revegetation of mining areas, thereby reducing the visual impact significantly
- All white boulders which are used to designate the mining areas will be removed on closure.

2.13 Regional Socio-economic Structure

The mining operations have a number of potential negative and positive impacts on the local and regional socio-economic structure. The aim of the company is to minimise potential negative impacts, while maximising the benefits. This may be undertaken by:

- Employment, both casual and permanent, will be provided where possible to local residents of Exolweni Village.
- Harvesting of black wattle for firewood will be allowed provided that it is supervised and the spread of seeds is prevented (ie should not harvest when seeds are set)
- The company will continue to provide building stone and sabunga to the local construction industry.
- Water availability within the Exolweni Village will not be affected as the mine will abstract during the night in order to fill the 80 000l storage tank on site.

2.14 Interested and Affected Parties

Interested and affected parties include the following:

- Exolweni residents
- Downstream water users
- The Buffalo City Municipality
- Eskom
- The Department of Minerals and Energy
- The Department of Economic Affairs, Environment and Tourism
- Department of Agriculture
- The Department of Health
- Amatole Water
- Road users

In order to minimise the impact on IAPs, to not transgress their rights and responsibilities and to meet their requirements, the following measures will be undertaken:

- Negotiations will be undertaken with Eskom to reach an agreement on the distance mining can take place towards the powerline.
- Good relations with neighbouring communities will be maintained through ongoing consultation.
- An alien plant eradication programme will be drawn up in conjunction with the Department of Agriculture.
- An Environmental Health and Safety awareness and training programme will be developed.

2.15 Education and Training

In order to ensure that the proposed management plan is correctly and effectively implemented, it is imperative that the entire staff which comprises the labour force and management, be aware of the importance of the programme, and are prepared to support it. A significant amount of instruction may be required in basic environmental awareness and management practices. In order to achieve staff awareness and co-operation, an environmental training programme will be designed and incorporated into the mine health and safety training programme. All new recruits and existing staff, will undergo the training programme. Compliance with the programme will also be enforced through taking punitive action against those who deliberately transgress the EMP.

3. DECOMMISSIONING PHASE AND CLOSURE

3.1 Closure Objectives

- To return the site to as natural state as possible.
- To minimise long term visual impacts.
- To prevent ongoing pollution.

3.2 Infrastructure Areas

- Remove all Plant, offices, weighbridge and concrete structures, slabs etc
- Removal all waste stone and residue dust
- Remove any contaminated soil for disposal at a registered landfill site.
- Clean up and remove any remaining solid waste
- Rip all hardened surfaces and cover with top soil
- Hydroseed with indigenous seed mix.
- Hand plant indigenous tree and bush seedlings

3.3 Mine Residue Deposits

There are no mine residue deposits.

3.4 Final Rehabilitation of opencast mine

3.4.1 Mining Face

- The mining face will be benched with 9m high x 9m wide benches.
- The top 9m will be sloped back to a 1:3 slope.
- Overburden, which consists of decomposed dolerite and boulders, will be pushed down over the benches to soften the ledges
- Topsoil will be placed over the overburden
- Surfaces will be hydroseeded with hand-planting of selected indigenous saplings.

3.4.1 Haul roads and ramps

- All haulroads will be ripped, topsoiled and revegetated as above.

3.4.2 Voids

- Existing voids, such as the old sabunga borrowpit, will be filled with oversized boulders and overburden, topsoiled and revegetated.

3.5 **Maintenance**

A maintenance programme for the quarry site will be drawn up near mine closure. This will incorporated the following:

- Alien plant eradication
- Erosion control
- The establishment of indigeneous vegetation

The maintenance programme will be applied until such time that the site is deemed to be stable and the natural vegetation has re-established to an extent that alien invasion is no longer a threat.

4. PROPOSED TIMETABLE, DURATION AND SEQUENCE

4.1 **Rehabilitation and Maintenance Programme**

The proposed Rehabilitation and Maintenance Programme is provided in Table 1.

4.2 **Decommissioning and aftercare programme**

The proposed Decommissioning and Aftercare Programme is provided in Table 2.

4.3 **Date for closure Application**

The proposed date for a closure application is 2025.

Table 1: Maintenance and Rehabilitation Programme

YEAR*	AREA	ACTIVITY	MAN. PLAN ref	ZONE Refer to Drawing 03	EQUIPMENT	COST
1	QUARRY	<ul style="list-style-type: none"> Remove all loose oversized boulders from pit floor and dump in old sabunga borrowpit void. Cover with overburden, topsoil and vegetate 	2.12	1	EXCAVATOR BELL ADT DOZER	15 000 2 000
	QUARRY	<ul style="list-style-type: none"> Remove top boulders from slope to the west of mine pit, towards access road. Dump in old sabunga void. Cover remaining boulders with overburden. Topsoil and hydroseed, plant indigenous tree saplings 	2.12	2	EXCAVATOR BELL ADT DOZER	500 1 500 9 000
	BORROWPIT	<ul style="list-style-type: none"> Diversion berms put in place above borrowpit 	2.7.3	3	EXCAVATOR	3 000
	BORROWPIT	<ul style="list-style-type: none"> Remove river crossing to sabunga borrowpit, placing boulders in borrowpit void. Re-instate stream banks and channel 	2.7	4	EXCAVATOR BELL ADT DOZER	3 000 7 000
	BORROWPIT	<ul style="list-style-type: none"> Bench southern extreme of borrowpit, topsoil and revegetated. 	2.12	5	DOZER	8 000
	STOCKPILE / PLANT	<ul style="list-style-type: none"> Clean out sediment from river bed. Pull back stone chip and boulders from stream edge Stabilise stockpile platform banks with overburden, topsoil and revegetated 	2.7	6	EXCAVATOR BELL ADT DOZER	4 000 1 000 6 000
	STOCKPILE / PLANT	<ul style="list-style-type: none"> Create containment berm around stockpile / plant area. Topsoil and vegetate Construct settlement sump at lowest point 	2.7	7	EXCAVATOR BELL ADT DOZER	4 000 1 000 1 000
	SCRAP AREA	<ul style="list-style-type: none"> Remove all scrap for sale to scrap merchant 	2.12	8	-----	500
	PLANT	<ul style="list-style-type: none"> Install mist sprays 	2.9	9	-----	2 000
	PLANT	<ul style="list-style-type: none"> Introduce drip trays and "spillsorb" 	2.7.1	9	-----	1 000
	ALL	<ul style="list-style-type: none"> Designate legal areas of activity with white-painted boulders. Anything outside the boulders is declared out of bounds 	2.2	All	-----	500

	ALL	<ul style="list-style-type: none"> • Introduce an alien plant eradication programme • Undertake alien plant eradication as part of on going maintenance plan 	2.5	All	---	3 000 3 000
	ALL	<ul style="list-style-type: none"> • Design and institute an environmental, health and safety awareness and training programme 	2.9 / 2.10	All	----	2 000
	ALL	<ul style="list-style-type: none"> • Develop an emergency action plan for spillages 		All	----	500
	ALL	<ul style="list-style-type: none"> • Undertake a topsoil audit to establish availability 		All	----	1 000
SUBTOTAL A						R 79 500
2-22	ALL	<ul style="list-style-type: none"> • Undertake alien plant eradication as part of on going maintenance plan 	2.5	All	----	6 000
3	BORROWPIT	<ul style="list-style-type: none"> • Bench, top soil and rehabilitate sabunga borrowpit 		All	EXCAVATOR BELL ADT DOZER	12 000
SUBTOTAL B						R 6 000 pa**
TOTAL						R 97 500

* Refers to years after issuing of new permit

** The company will budget R 6000 pa for alien plant eradication. The total amount which will be spent has not, however, been included in the TOTAL as, should the mine have to close down unexpectedly then the maintenance plan in Table 2, below, would come into effect. With the Maintenance plan under, the company would not need to budget an additional R6000 pa for alien plant eradication.

Table 2: Decommissioning and Aftercare Programme

YEAR*	AREA	ACTIVITY	MAN. PLAN ref	ZONE Refer to Drawing 03	EQUIPMENT	COST
1	PLANT	<ul style="list-style-type: none"> Dismantle and remove plant and weighbridge Demolish all buildings and dispose of rubble in pit void (to be covered with overburden) Demolish concrete slabs and dispose as above 	3.2	9	EXCAVATOR BELL ADT DOZER	10 000 7 000 2 000
1	STOCKPILE AREA	<ul style="list-style-type: none"> Remove all stockpiled stone chip as well as waste stone Rip surface and top soil Revegetate 	3.2	9	EXCAVATOR BELL ADT DOZER	 1 500 1 500
1	HAUL ROADS	<ul style="list-style-type: none"> Rip all haulroads, topsoil and vegetate 	3.4.2	11	DOZER	10 000
1	MINING AREAS	<ul style="list-style-type: none"> Rehabilitate remaining exposed benches and pit floor as described in management plan 	3.4.1	12	DOZER	7 000
1	ALL	<ul style="list-style-type: none"> Remove white painted rocks 	3.4	All	---	2 500
1	ALL	<ul style="list-style-type: none"> Clean up entire area of any remaining waste, oil spills etc 	3.2	All	---	1 500
SUBTOTAL						R 43 000
2	ALL	<ul style="list-style-type: none"> Monitor the re-establishment of vegetation and invasion of alien species Take necessary measures to rectify situation should vegetation not be re-establishing successfully. Monitor erosion on site and stabilise surfaces if required. 	3.5		---	4 000
SUBTOTAL						R 4 000
TOTAL (table 2)						R 47 000
TOTAL (table 1)						R 97 500
GRAND TOTAL						R 144 500

* refers to years after mine closure

5. FINANCIAL PROVISION

Regulation 5.16 of the Regulations promulgated in terms of the Minerals Act 50 of 1991 requires, inter alia, that the quantum of the financial provision must be determined to the satisfaction of the Department and must be revised on an annual basis. The purpose of the financial provision is to ensure that the State has sufficient funds to rehabilitate the mine on behalf of the proponent, should the proponent become liquidated or otherwise incapacitated.

Based on the tables provided above, the financial provision for implementing the environmental management programme over the next two years, final closure and rehabilitation will be R 144 500 excluding VAT.

Financial provision will be lodged via a bank guarantee which will be administered through Adbo and Adbo Attorneys.

PART C: CONCLUSION

The St Lukes Quarry has a projected life of a further 22 years based on current production rates and estimated reserves. The quarry has been in existence for some 15 years. There are two components to the mining operations: the hard rock dolerite quarry and the sabunga pit.

Limited environmental management practiced over the past years has resulted in existing environmental impacts to the site and surrounding areas. Of particular concern is the effect of mining and crushing on the drainage lines. A programme is proposed whereby the impacted stream beds and banks are rehabilitated and protected from further disturbance. A stormwater management plan, which will include the placement of containment berms and the construction of a settlement sump, will be implemented in order to prevent stormwater from entering the drainage lines.

Ongoing maintenance of the site will include an alien eradication programme to remove all alien invasive plants and to prevent their reoccurrence. Areas of activity will be clearly designated with white boulders. No-go areas will be established in sensitive habitats, such as riverbanks and drainage lines, and on recently rehabilitated areas.

A waste management programme is proposed in order to control the handling, storage and disposal of hazardous and domestic waste. All scrap will be cleared from the site and removed for recycling purposes. Loose oversized boulders currently littering the site will be cleared and deposited in existing excavations which will be top-dressed with weathered dolerite, topsoiled and rehabilitated. The sabunga borrowpit will be extended along the contours, benched, topsoiled and rehabilitated. A cut-off berm will prevent runoff from entering the borrowpit.

The hard rock quarry will extend to within the legally allowable distance from Eskom powerlines. The face will be benched with 9x9m benches, with the top 9m sloped to 1:3. After completion of this face, mining will continue in a northerly direction towards the crusher plant. All topsoil will be stripped from the site and stockpiled for use during rehabilitation. Broad, shallow benches will be put in place to accommodate the drop in height between the existing floor of the mining area and the level of the primary crusher. On completion of mining, the entire area will be covered with a layer of sabunga, topsoiled and revegetated with an indigenous grass mix and selected indigenous trees.

On closure, all infrastructure, including the crusher plant, offices and weighbridge will be dismantled and removed from the site. Concrete platforms will be removed and the crusher site rehabilitated. The proposed end use of the site is natural veld.

PART D: STATUTORY REQUIREMENTS

List of permissions already granted under other statutes concerning the environment.

(None)

PART E: AMENDMENTS TO THE EMPR

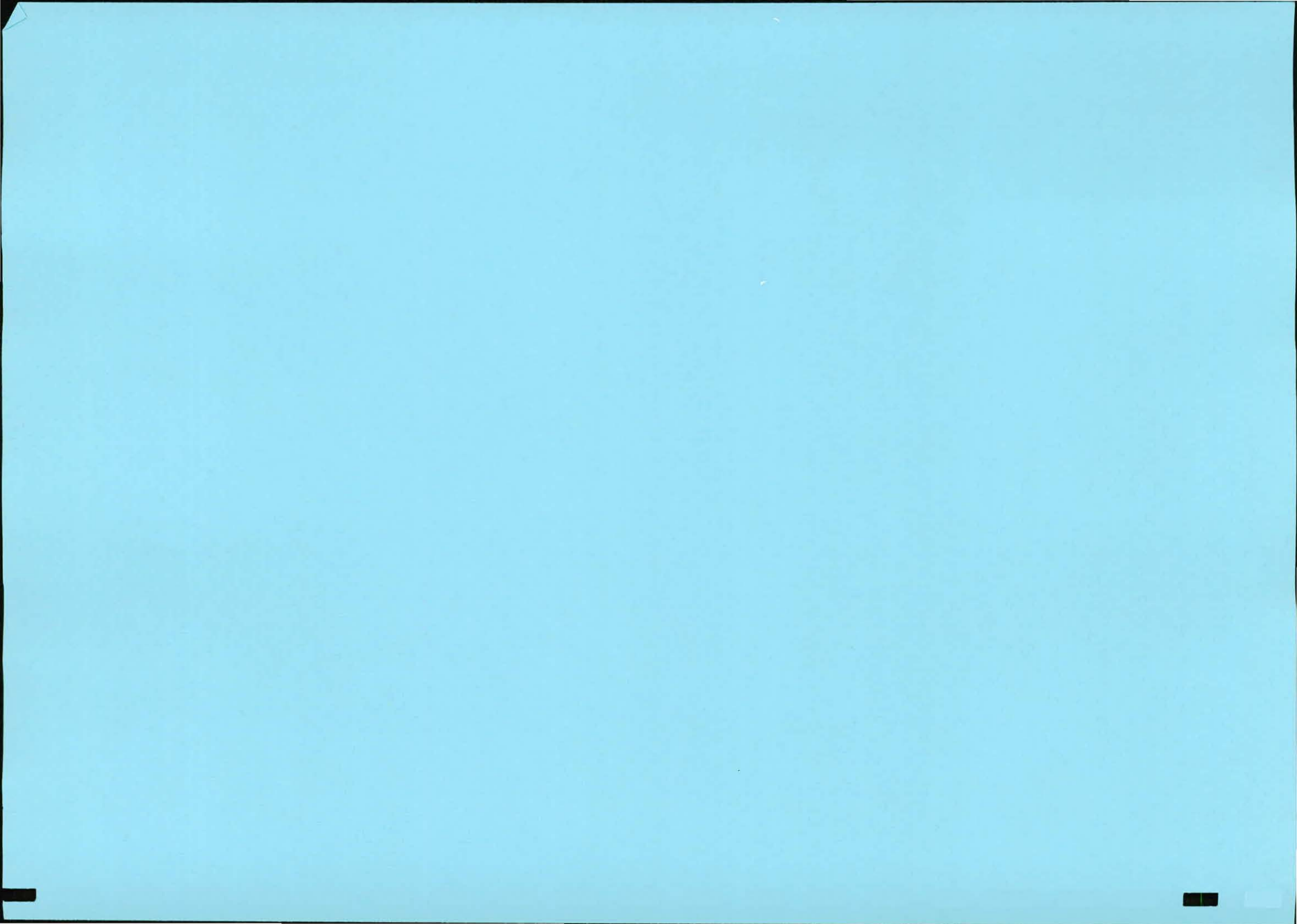
PART F: REFERENCES AND SUPPORTING DOCUMENTS

St Lukes Quarry. Proposed Rehabilitation Procedure from Quarry Situated on Farm 303 in the East London District.

The Aide Memoir for the Preparation of Environmental Management Programme Reports. Department of Minerals and Energy.

APPENDIX I:

ANNUAL ENVIRONMENTAL PERFORMANCE ASSESSMENTS



ANNUAL PERFORMANCE ASSESSMENT REPORT FOR ST LUKES QUARRY



September 2007

PERFORMANCE ASSESSMENT OF THE ENVIRONMENTAL MANAGEMENT PROGRAMME
FOR THE MINING OF DOLERITE BY INDEPENDENT CRUSHERS IN THE MAGISTERIAL
DISTRICT OF EAST LONDON, FOR THE PERIOD ENDING SEPTEMBER 2007

Prepared for:

Independent Crushers cc

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TERRECO cc
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ANNUAL PERFORMANCE ASSESSMENT REPORT FOR ST LUKES QUARRY

September 2007

Prepared By

Reviewed By

Approved By

ORIGINAL	NAME JO DANEEL	NAME C JOUBERT	NAME JO DANEEL
DATE 20 September 2007	SIGNATURE	SIGNATURE	SIGNATURE

DISTRIBUTION LIST

Name	Organisation	Date
Glynnis Randall	Independent Group of Companies	20 September 2007
Pat Stockwell	Independent Crushers	20 September 2007
Jan van As	Department of Minerals and Energy	20 September 2007
Jo Daneel	Terreco cc	20 September 2007

PREAMBLE

Section 55 of the Regulations pertaining to the Minerals and Petroleum Resources Act, Act 28 of 2002, makes provision for performance assessments of the Environmental Management Plan or Programme to be undertaken on a regular basis. This Report presents the findings of the first annual Performance Assessment which took place on the 07/09/2007. The assessment has been conducted in accordance with Section 55(3) of the Regulations. The assessment was undertaken by an independent firm of environmental consultants, Terreco cc.

The project involves the mining of dolerite which is crushed and sold commercially, and sabunga (decomposed dolerite). The current production rate is estimated at 35 000 – 40 000 tons of material mined per month. The operation has been in existence for a number of years with an estimated life span of a further 15 years+.

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APPENDICES

- APPENDIX A: SITE PLAN
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1 INTRODUCTION

Terreco Consulting were appointed by Independent Crushers to undertake an Annual Performance Assessment of the Environmental Management Programme for the St Lukes mine, outside of Mdantsane. The assessment is undertaken in accordance with the regulations pertaining to the Minerals and Petroleum Resources Development Act, Act No 28 of 2002.

The purpose of the Performance Assessment is to ensure compliance with the Department of Minerals and Energy (DME) approved Environmental Management Programme. The EMP was submitted to DME in November 2003 and the mining licence renewed shortly thereafter.

2 SCOPE OF THE ASSESSMENT

The scope of the assessment includes the dolerite mining operations as well as the crushing and stockpiling of dolerite and the mining of decomposed dolerite (sabunga) which all takes place on the Remainder of Portion 4 of Farm No 303 outside of Mdantsane. The associated activities such as the repairs and maintenance of machinery are included in the scope of this assessment. The assessment is limited to the mining area which falls within the property owned by Leo Trust.

3 APPROACH AND METHODOLOGY

The approach to the assessment is in keeping with the basic guidelines provided in Regulation 55 (3) of the Act. Prior to the site visit, the relevant documentation, detailed below, was studied, and the outline of the Performance Assessment report drafted. A site visit was undertaken by Ms Jo Daneel of Terreco on the morning of the 07/09/2007, accompanied by Mr Pat Stockwell, mine manager for Independent Crushers. Following initial discussions, the entire operation was visited, including a drive around the mining areas.

A checklist, based on the requirements of the EMP, was completed while on site and forms the basis of this report. The checklist is included in APPENDIX C.

The Performance Assessment Report is submitted to the DME, as well as the management of Independent Crushers.

Relevant documentation includes:

- Environmental Management Programme Report for St Luke's Quarry, East London. This report was produced by Terreco cc in November 2003 in response to a request from the Department of Minerals and Energy to upgrade the Rehabilitation Plan.

- The Minerals and Petroleum Resources Development Regulations, published in Government Gazette No. R. 527 (23 April 2004) under Section 107 (1) of the Minerals and Petroleum Development Act, Act No 28 of 2002).

4 EVALUATION CRITERIA

The environmental performance on site was evaluated against the requirements of the EMP. In addition to that above, the existing EMP documentation was evaluated with reference to the requirements of the Minerals and Petroleum Resources Development Act. The requirements of other relevant legislation (eg Hazardous Substances Act) were referred to. Furthermore, the BATNEEC (Best Practice not Entailing Excessive Cost) principle was used when assessing elements of the company's activities.

5 FINDINGS

5.1 Geology

Impact Description: Considering that this is a mining activity, impacts on the geology are unavoidable. Measures are however stipulated in the EMPR to minimise this impact.

Management Action: The recovery of oversized boulders for use in rehab and the designation of mining areas to avoid mining where rock is less that suitable.

References: EMPR (November 2003); Section 2.1

Findings: Mining is taking place within the designated and approved mining area. Oversized produced from current mining operations will, however, be broken down and crushed. The old deposits of oversized will be covered and rehabilitated as planned.

Compliance:	The site complies with the EMP.
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5.2 Topography

Impact Description: The topography is generally an unfortunate causality of open cast mining methods. The original shape of the hillside has been severely altered by mining activities to date, and this will continue as the mine develops.

Management Action: The EMP calls for the benching of quarry faces (9mx9m) and the sloping of the top 9m to a 1:3 slope. The back face of the sabunga borrowpit is to be benched and the pit filled with waste rock and overburden.

References: EMPR (November 2003); Section 2.2

Findings: Benches have been created on the quarry faces. These will, however, be removed as the mining progresses. This is contrary to the approved mining plan as the mining area has been extended. Should the quarry be mined as is currently proposed, then the final topography will vary greatly from the approved closure plan. It is imperative that the EMP and the development and closure plans be revised and approved by DME.

No benching or shaping of the sabunga borrowpit has been undertaken. Benching may not be the best option considering the current condition and it is suggested that this be addressed in the revised EMP.

Compliance: The site currently complies, although the proposed development plan for the site will be in conflict with the approved EMP. The EMP should therefore be amended.
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5.3 Soils

Impact Description: Topsoil is a precious resource which must be preserved and protected for use during rehabilitation. Injudicious mining will result in the loss, contamination or compaction of topsoil which will hamper rehabilitation efforts.

Management Action: The EMPR indicates the removal of topsoil and subsoil and the storage of these materials in separate stockpiles, protected from erosion and revegetated with indigenous species.

References: EMPR (November 2003); Section 2.3.

Findings: Topsoil has been stripped and is stockpiled in places. This appears to be undertaken in a haphazard manner and stockpiles are not clearly demarcated or protected for further disturbance. The mixing of topsoil and overburden is evident in places. Topsoil stockpiles have become infested with invasive alien plant species. A topsoil audit has not been undertaken and it is not clear at this stage whether there will be sufficient reserves on site to facilitate the necessary rehabilitation.

Compliance:	Given the haphazard manner in which topsoil is stripped and stockpiled and the lack of clarity on the size of the reserves, the site does not fully comply with the EMP in terms of soil protection/conservation.
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5.4 Land Capability

Impact Description: The mining area will be returned to the original landuse, which is bushveldt.

Management Action: To implement that closure and rehabilitation measures outlined in the EMPR.

References: EMPR (November 2003); Section 2.4.

Findings: Not able to assess as the mine is still operational.

Compliance:	Not able to assess as the mine is still operational, although the long-term objective has not been compromised.
--------------------	--

5.5 Natural Vegetation

Impact Description: Specific threats to the vegetation on the property are posed by the following activities:

- Wood collecting by neighbouring communities
- Clearing for mining operations
- Invasion of alien species, such as black wattle, the castor oil bush and *Syringa* spp.
- Pollution and sedimentation of drainage lines may effect riverine trees

As mentioned above, there is prevalence of alien invasive species in disturbed areas around the mining and processing areas. These include the following:

- Castor Oil Plant (*Ricinis communis*)
- *Syringa* spp
- Peanut butter cassia (*Cassia didymobotria*)

Black Wattle (*Acacia maerisi*) is widespread throughout the area and occurs well within the Valley Thicket. *Lantata camara* has not as yet got a foothold on the property, although it is prevalent in the general vicinity of the study area

Management Action: The EMPR calls for the eradication of all alien invasive plant species starting with those occupying the drainage lines. Provision is made for an Alien Plant Control Programme which will help facilitate the removal of these species. The EMPR

details the rehabilitation and revegetation measures to be employed during mine closure.

References: EMPR (November 2003); Section 2.5.

Findings: Little progress has been made since 2003 in tackling the alien plant invader problem. There is no Alien Plant Control Programme in place and no evidence that effort has been made to remove these plants from within the drainage lines or across the mining areas.

Compliance: **The site does not comply with the EMPR. The eradication of alien invader plants should be an ongoing process throughout life of mine and should not be left until closure.**

5.6 Animal Life

Impact Description: Indigenous mammal life on the site and its immediate surrounds is likely reduced to small rodents, reptiles (lizards, skinks etc) and birds due to the level of activity, habitat disturbance and noise. There are no protected or endangered species likely affected by the current and proposed operations. The two streams which confluence below the stockpile area are not likely to support a rich and varied animal life as these have been highly impacted by mining activities. Nevertheless, measures should be taken to protect the remaining animal life and, more importantly, their habitat.

Management Action: The EMPR makes provision for the prevention of hunting or trapping and the protection of animal habitat.

References: EMPR (November 2003); Section 2.6.

Findings: While issues such as hunting and trapping and the prevention of fires are being implemented, the protection and/or rehabilitation of habitat (as outlined in Section 5.5 above) requires attention.

Compliance: **The site generally complies with the EMP although more emphasis should be placed on the protection and rehabilitation of the watercourses.**

5.7 Surface Water

Impact Description: Surface water sources in the area consist of two un-named tributaries of the Rwantsa River, which feeds into the Nahoon River. The tributaries are perennial. The western tributary is dammed above the main access road crossing. The banks of the streams have been severely impacted by the mining operations, mainly in the vicinity of the Sabunga Borrowpit and the Stockpile area. Oversized boulders have been placed in the stream to allow for a road crossing to the borrowpit. The banks of the streams have been encroached on by the platform created for stockpiling of crushed stone. Fine sediment, possibly crusher dust, has been spilt over the berm, smothering vegetation and impacting on the stream bed.

Management Action: The EMPR makes provision for a stormwater management system, involving a low berm around the perimeter of the crusher yard and the installation of a sediment trap (sump). The EMPR stipulates that the material which has encroached into the stream bed be removed and that the water courses be protected from further damage. The stream crossing to the sabunga borrowpit must be removed and all alien invader species eradicated from the water courses.

References: EMPR (November 2003); Section 2.7.

Findings: The inspection concluded that while some of the measures have been implemented, the operations are still impacting negatively on the water courses. A concrete sump has been constructed below the crusher site and a berm consisting of crushed stone installed on the perimeter of the platform along the banks of the water courses. Runoff generated within the crusher site is therefore directed into the sump. At the time of the inspection, the sump was largely filled with sediment and there was evidence of hydrocarbon contamination originating from a nearby excavator which had apparently broken down.

No effort has been made to date to pull back the boundary of the operations from the water courses and the berm has not been stabilised and vegetated (as indicated in the EMPR).

While berms have been erected below and workshop platform and at the sabunga borrowpit, stormwater is not completely contained on site and filtered before discharge to the environment.

The eradication of alien plant species is not taking place as described in Section 5.5.

The second river crossing (without a culvert) has not been removed as requested by DME, although water is evidently filtering through the rockfill.

Compliance:	The site does not fully comply with the EMPR. A detailed stormwater management system is required.
--------------------	---

5.8 Water Quality

Impact Description: Water quality has not been tested. However, due to the impacts described in the section above, stream water is likely to have a high TDS, particularly after heavy rainfall events when runoff from the stockpile area enters the drainage lines. Other threats to water quality include hydrocarbon spillage and sewage. Diesel is stored on site in tanks placed within a bunded area and a small workshop for emergency repairs is planned.

Management Action: The EMPR makes provision for adequate ablution facilities and safe storage, handling and disposal of any hazardous wastes (such as hydrocarbons). An Emergency Action Plan for spillages is required.

References: EMPR (November 2003); Section 2.7.1.

Findings: Sufficient ablutions are provided. The diesel is stored in a bunded area. No drip trays are provided, however, and there is no material for the mopping up of spillages stored on site. There is no Emergency Action Plan for spillages. With the development of the workshop, it is going to be imperative that a hazardous waste management system is developed and implemented.

Compliance:	The site does not comply fully with the EMP.
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5.9 Water Balance

Impact Description: The injudicious use of water may result in wastage and may compromise other users.

Management Action: Water usage is it be monitored.

References: EMPR (November 2003); Section 2.7.2.

Findings: Water is supplied via the municipal reservoir in Mdantsane. The water usage is metered.

Compliance:	The site complies with the EMP
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5.10 Stormwater

Impact Description: It is important in the operation of the mining area to separate the clean water runoff and the dirty water runoff – ie, that which originates from within the mining area and as a result has a high sediment load with possible pollutants.

Management Action: The EMPR makes provision for the erection of diversion berms and sumps for settling out of sediment.

References: EMPR (November 2003); Section 2.7.3.

Findings: Refer to Section 2.7. The berm has been created around part of the mining area and the sump has been installed. The sump must be emptied regularly. There is no stormwater management plan in place.

Compliance: The site does not comply fully with the EMP.

5.11 Surface Rehabilitation

Rehabilitation of the site has not commenced therefore this section is not relevant to the current performance assessment.

5.12 Groundwater

Impact Description: The operations do not impact directly on groundwater levels. In extreme cases, the mining and associated activities may impact on groundwater quality. No groundwater abstraction takes place on the site.

Management Action: Pollution control measures described above under Section 5.8 will be put in place to protect groundwater quality as much as that of the surface water.

References: EMPR (November 2003); Section 2.8.

Findings: Refer to Section 5.8.

Compliance: The site does not comply fully with the EMP

5.13 Air Quality

Impact Description: Dust is the main concern regarding impacts on air quality. The inhalation of excessive dust, particularly from the crusher plant may have a detrimental effect on human health. Excessive dust will smother plants.

Management Action: The EMPR makes provision for dust suppression along the haul roads and at the crusher plant. All staff at risk is to undergo awareness training and be equipped with dust masks. Regular health checks and dust monitoring are required.

References: EMPR (November 2003); Section 2.9.

Findings: Quarterly dust monitoring is undertaken by EcoServ. Dust suppression takes place along the haul roads and access road and the plant is equipped to some extent with dust shoots, hoods and mist sprays. The labour are subject to annual lung function tests and medicals undertaken by Dr Marion Anderson. Independent Crushers is currently in the process of implementing a health and safety management system according to ISO 18001.

Compliance:	The site complies with the EMP
--------------------	---------------------------------------

5.14 Noise

Impact Description: Excessive noise may be damaging to human health.

Management Action: The EMPR makes provision for annual staff medicals and for the monitoring of noise levels. Workers must be protected against the harmful effects of exposure to high levels of noise.

References: EMPR (November 2003); Section 2.10.

Findings: Staff are equipped with hearing protection devices. Independent Crushers is currently in the process of implementing a health and safety management system according to ISO 18001. Noise monitoring is undertaken by EcoServ on a quarterly basis, and annual medicals are undertaken.

Compliance:	The site complies with the EMPR.
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5.15 Visual Impacts

Impact Description: The emphasis of the mine development plan to be applied for the next 10 years is on ultimately minimising the visual impact of the quarry once final closure takes place and rehabilitation has been completed. Located only 1200m from the N2, mining operations are, and will continue to be, highly visible to motorists on the east bound lanes.

Management Action: The management actions outlined in the EMPR relate mainly to the final rehabilitation of the mining area and dictate how the mine is to be developed further. All scrap is to be removed from the site and the area is to be rehabilitated and revegetated as outlined in Section 2.2 of the EMPR.

References: EMPR (November 2003); Section 2.12.

Findings: Little progress has been made to address the visual impacts of the quarry since the EMPR was compiled in 2003. Some of the scrap metal has been removed by no progressive rehabilitation has been undertaken. It is, however, appreciated that much of the work will only be possible once mining has ceased. The proposed deviation of the mine development to that which is currently approved will have implications for the visual impact of quarry. This must be addressed in the revised EMPR.

Compliance:	The site currently complies partially with the EMPR, although the proposed changes to the development plan will deviate from the EMPR and must be authorised accordingly.
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5.16 Regional Socio-Economic Structure

Impact Description: The mining operations have a number of potential negative and positive impacts on the local and regional socio-economic structure. The aim of the company is to minimise potential negative impacts, while maximising the benefits.

Management Action: The EMPR makes provision for the employment of labour drawn from the neighbouring settlements. St Luke's Quarry will continue to contribute positively to the local economy through the provision of building materials. The local community will not be compromised by the supply of water to the quarry.

References: EMPR (November 2003); Section 2.12.

Findings: Employees are generally sourced from the neighbouring communities. Water is supplied via the municipal system and therefore does not impact on the neighbouring settlements.

Compliance: The site complies with the EMPR

5.17 Interested and Affected Parties

Management Action: In order to minimise the impact on IAPs, to not transgress their rights and responsibilities and to meet their requirements, the following measures will be undertaken:

- Negotiations will be undertaken with Eskom to reach an agreement on the distance mining can take place towards the powerline.
- Good relations with neighbouring communities will be maintained through ongoing consultation.
- An alien plant eradication programme will be drawn up in conjunction with the Department of Agriculture.
- An Environmental Health and Safety awareness and training programme will be developed.

References: EMPR (November 2003); Section 2.14.

Findings: The Eskom Powerline has been moved further away from the mining operations right off the mining area. Good relations are maintained with the local community and means of providing support them are being discussed. Independent Crushers is currently in the process of implementing a health and safety management system according to ISO 18001. An alien plant eradication programme has not been implemented.

Compliance: The site complies partially with the EMPR.
--

5.18 Education and Training

Management Action: In order to ensure that the proposed management plan is correctly and effectively implemented, it is imperative that the entire staff which comprises the labour force and management, be aware of the importance of the programme, and are prepared to support it. A significant amount of instruction may be required in basic environmental awareness and management practices. In order to achieve staff awareness and co-operation, an environmental training programme will be designed and incorporated into the mine health and safety training programme. All

new recruits and existing staff, will undergo the training programme. Compliance with the programme will also be enforced through taking punitive action against those who deliberately transgress the EMP.

References: EMPR (November 2003); Section 2.15.

Findings: No environmental awareness programme has been implemented. It is strongly suggested that this forms part of the Health and Safety management system.

Compliance: **The site does not comply with the EMPR.**

6 ASSESSMENT OF FINANCIAL PROVISION

Table 1 of the EMPR provides a Maintenance and Rehabilitation Programme which included costs as calculated in November 2003. The total cost was R144,500.00. A table has been included overleaf indicating the original table, where activities are still relevant and the updated or escalated costs. The current cost for rehabilitation is estimated at R211,200.00

Financial provision has been lodged with Abdo and Abdo, with the balance indicated at roughly R200,000.00 (as of the 16/01/2004). Based on the table overleaf, this amount is roughly in line with the current prediction of rehabilitation costs. However, should Independent Crushers wish to alter the proposed development plan through a revised EMP, then the financial provision would require recalculation. Is it recommended that the current balance of the financial guarantee be established and should this fall substantially short of the predicted rehabilitation costs, then the necessary adjustments need to be made. It should be noted that the most up to date figure which was provided was dated the 16/01/2004.

7 ASSESSMENT OF THE EXISTING EMP

The current Environmental Management Programme Report was compiled under the previous Minerals Act of 1991. This Act has been superseded by the new Minerals and Petroleum Resources Development Act, Act 28 of 2002 which came into effect on the 1 May 2004. In order for the company to comply with the provisions of the new Act, they are required to convert from the old order mining licence to the new Mining Right issued in terms of the new Act. Part of this conversion involves updating the environmental management plan.

The proposed changes to the mining development plan, as discussed with Mr Stockwell on the 07/09/2007, will need to be authorised by the DME. It is suggested that these be addressed in the revised and updated EMP undertaken in terms of the new regulations.

8 CONCLUSIONS

One may conclude from the performance assessment that, with the exception of the construction of the sediment trap and the berm along the lower end of the crusher site, little has been achieved in terms of meeting the provisions of the EMPR which were formulated in 2003.

Based on discussions with the site management, there is an intention to change the proposed mining plan from what is currently approved. In order to facilitate that, the EMP would require updating and revision under the new MPRDA. Is it furthermore recommended that the current balance of the financial guarantee be established and should this fall substantially short of the predicted rehabilitation costs (approximately R 211,200.00), then the necessary adjustments must be made.

Table 1: Maintenance and Rehabilitation Programme

YEAR*	AREA	ACTIVITY	MAN. PLAN ref	ZONE Refer to Drawing 03	EQUIPMENT	COST	REVISED COST ¹	COMMENT
1	QUARRY	<ul style="list-style-type: none"> Remove all loose oversized boulders from pit floor and dump in old sabunga borrowpit void. Cover with overburden, topsoil and vegetate 	2.12	1	EXCAVATOR BELL ADT DOZER	15 000 2 000	25000	Not completed – may not be applicable in new EMP.
	QUARRY	<ul style="list-style-type: none"> Remove top boulders from slope to the west of mine pit, towards access road. Dump in old sabunga void. Cover remaining boulders with overburden. Topsoil and hydroseed, plant indigenous tree saplings 	2.12	2	EXCAVATOR BELL ADT DOZER	500 1 500 9 000	16000	Not completed – will likely change with new EMP
	BORROWPIT	<ul style="list-style-type: none"> Diversion berms put in place above borrowpit 	2.7.3	3	EXCAVATOR	3 000	4500	Not completed
	BORROWPIT	<ul style="list-style-type: none"> Remove river crossing to sabunga borrowpit, placing boulders in borrowpit void. Re-instate stream banks and channel 	2.7	4	EXCAVATOR BELL ADT DOZER	3 000 7 000	14500	River crossing still in place
	BORROWPIT	<ul style="list-style-type: none"> Bench southern extreme of borrowpit, topsoil and revegetated. 	2.12	5	DOZER	8 000	12000	Not completed – will likely change with new EMP
	STOCKPILE / PLANT	<ul style="list-style-type: none"> Clean out sediment from river bed. Pull back stone chip and boulders from stream edge Stabilise stockpile platform banks with overburden, topsoil and revegetated 	2.7	6	EXCAVATOR BELL ADT DOZER	4 000 1 000 6 000	16000	Not completed
	STOCKPILE / PLANT	<ul style="list-style-type: none"> Create containment berm around stockpile / plant area. Topsoil and vegetate Construct settlement sump at lowest point 	2.7	7	EXCAVATOR BELL ADT DOZER	4 000 1 000	8500	Partially Completed

¹ For the purpose of this exercise an annual escalation of 10% was applied.

YEAR*	AREA	ACTIVITY	MAN. PLAN ref	ZONE Refer to Drawing 03	EQUIPMENT	COST	REVISED COST ¹	COMMENT
						1 000		
	SCRAP AREA	<ul style="list-style-type: none"> Remove all scrap for sale to scrap merchant 	2.12	8	---	500	700	Partially Completed
	PLANT	<ul style="list-style-type: none"> Install mist sprays 	2.9	9	---	2 000	3000	Partially Completed
	PLANT	<ul style="list-style-type: none"> Introduce drip trays and "spillsorb" 	2.7.1	9	----	1 000	1500	Not completed
	ALL	<ul style="list-style-type: none"> Designate legal areas of activity with white-painted boulders. Anything outside the boulders is declared out of bounds 	2.2	All	---	500	700	Partially Completed
	ALL	<ul style="list-style-type: none"> Introduce an alien plant eradication programme Undertake alien plant eradication as part of on going maintenance plan 	2.5	All	---	3 000 3 000	8700	Not completed
	ALL	<ul style="list-style-type: none"> Design and institute an environmental, health and safety awareness and training programme 	2.9 / 2.10	All	---	2 000	3000	Not completed
	ALL	<ul style="list-style-type: none"> Develop an emergency action plan for spillages 		All	---	500	700	Not completed
	ALL	<ul style="list-style-type: none"> Undertake a topsoil audit to establish availability 		All	---	1 000	1500	Not completed
Subtotal A						79 500	116 300	
2-22	ALL	<ul style="list-style-type: none"> Undertake alien plant eradication as part of on going maintenance plan 	2.5	All	---	6 000	8800	Not completed
3	BORROWPIT	<ul style="list-style-type: none"> Bench, top soil and rehabilitate sabunga borrowpit 		All	EXCAVATOR BELL ADT DOZER	12 000	17500	Not completed – will likely change with new EMP
Subtotal B						18 000	26 300	
TOTAL TABLE 1						97 500	142 600	

Table 2: Decommissioning and Aftercare Programme

YEAR*	AREA	ACTIVITY	MAN. PLAN ref	ZONE Refer to Drawing 03	EQUIPMENT	COST	REVISED COST	COMMENT
1	PLANT	<ul style="list-style-type: none"> Dismantle and remove plant and weighbridge Demolish all buildings and dispose of rubble in pit void (to be covered with overburden) Demolish concrete slabs and dispose as above 	3.2	9	EXCAVATOR BELL ADT DOZER	10 000 7 000 2 000	27800	NOT COMPLETED
1	STOCKPILE AREA	<ul style="list-style-type: none"> Remove all stockpiled stone chip as well as waste stone Rip surface and top soil Revegetate 	3.2	9	EXCAVATOR BELL ADT DOZER	1 500 1 500	4500	NOT COMPLETED
1	HAUL ROADS	<ul style="list-style-type: none"> Rip all haulroads, topsoil and vegetate 	3.4.2	11	DOZER	10 000	14500	NOT COMPLETED
1	MINING AREAS	<ul style="list-style-type: none"> Rehabilitate remaining exposed benches and pit floor as described in management plan 	3.4.1	12	DOZER	7 000	10000	NOT COMPLETED
1	ALL	<ul style="list-style-type: none"> Remove white painted rocks 	3.4	All	---	2 500	4000	NOT COMPLETED
1	ALL	<ul style="list-style-type: none"> Clean up entire area of any remaining waste, oil spills etc 	3.2	All	---	1 500	2000	NOT COMPLETED
Subtotal						43000	62800	
2	ALL	<ul style="list-style-type: none"> Monitor the re-establishment of vegetation and invasion of alien species Take necessary measures to rectify situation should vegetation not be re-establishing successfully. Monitor erosion on site and stabilise surfaces if required. 	3.5		---	4 000	5800	NOT COMPLETED
Subtotal						4000	5800	
Total Table 2						47 000	68 600	
Table 1 + Table 2						144 500	211 200	Revised Costs

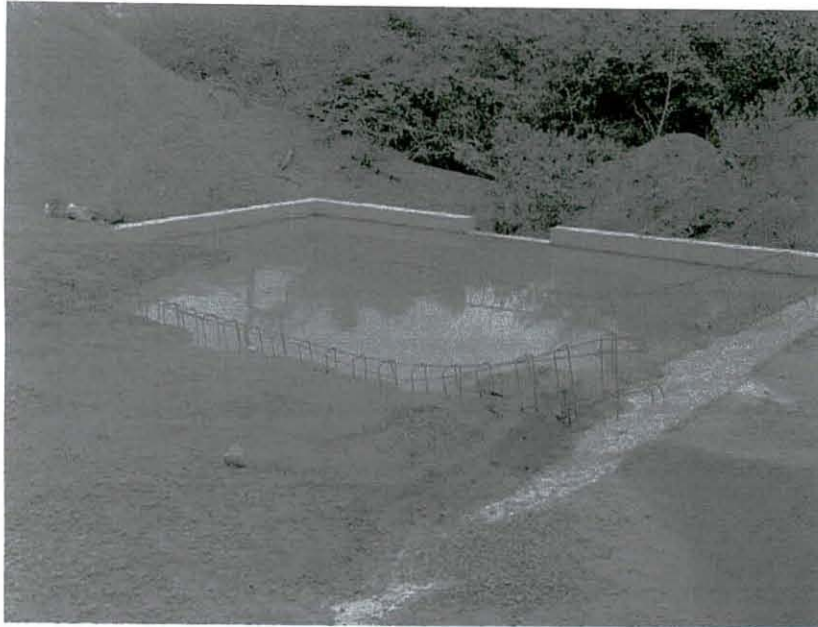
APPENDIX A:

SITE PLAN

APPENDIX B:
PHOTOGRAPHS



Clockwise from top left: Dolerite borrowpit. Mining area, looking north. Mining area looking south. Access road to top of face. Need to ensure that topsoil is not used as roadways.



Clockwise from top left: Sediment Trap requires regular cleaning.
Outlet from borrowpit must be filled with boulders to filter water.

Topsoil must be in designated areas and protected.
Mining area still encroaching on water course.

APPENDIX C:

CHECKLIST

Date: 07 September 2007

Auditor: Jo Daneel (for TERRECO)

NO	ACTIVITY	COMP Y/N	ACTION Y/N	COMMENT
A: Geology				
1	All oversized rocks and boulders which cannot be crushed will be used to fill up voids left by the mining activities.	N	N	All oversized will be broken up and crushed.
2	The mining areas will be clearly designated. No mining will be undertaken in areas where the reserves have not been fully proven, therefore preventing any unnecessary and wasteful mining	Y	N	The mining area is clearly designated.
B: Topography				
1	Quarry faces will be benched with 9 m high x 9 m wide benches.	Y	N	
2	The top 9m will be graded to a 1:3 slope	N/A	N/A	The mining plan has changed which will negate this action.
3	The sharp, harsh profile of the benches will be softened by backfilling with waste rock and overburden.	N/A	N/A	There will be no mining benches created with the revised mining plan.
4	The back face of the Sabunga Borrowpit will be benched and shaped to resemble natural contours.	N	Y	Rehab as per the original plan is no longer possible – this will have to be revised.
5	The old sabunga pit to the east of the property will be filled with oversized waste rock and overburden	Y	N	This will be undertaken at closure.
C: Soils				
1	Topsoil will be stripped from all mining areas, and surfaces which will be compacted or covered during the course of mining operations, eg stockpile areas, workshops, offices, roads etc	Y	N	Topsoil is removed from mining areas.
2	The A-horizon (dark brown, humic-rich topsoil) will be stripped and stockpiled in designated stockpile areas	Partially		The A-horizon is not always stripped separately to the subsoil and overburden.
3	Sub-soil will be stripped and stockpiled in a similar fashion separate to the A-horizon	Partially		See above
4	Topsoil stockpiles will consist of uncompacted heaps not exceeding 1.5m in height	Partially		Care must be taken to prevent the compaction of topsoil .
5	Topsoil stockpiles will be vegetated with indigenous species in order to maintain biological activity and viability in the long term.	N	Y	Stockpiles are invaded by alien vegetation
6	Topsoil stockpiles will be protected from erosion through the placement of stormwater diversion berms on the upslope side of the heaps.	N	N	Topsoil stockpiles are not vulnerable to erosion.
7	An audit will be undertaken to measure the volume of topsoil available. A calculation will be made of the required volumes for final rehabilitation of the site. Should there be a deficit, an alternative sources (eg from construction sites) will be identified and the topsoil brought onto site and stockpiled for use in the final rehabilitation.	N	Y	This audit has not been undertaken. It is unclear whether there is sufficient topsoil available for rehab.
D: Land Capability				
1	The site will be rehabilitated and revegetated to facilitate the return of indigenous valley bushveld.	Y	N	This is currently still the planned endues.

NO	ACTIVITY	COMP Y/N	ACTION Y/N	COMMENT
E: Vegetation				
1	An Alien Plant Control Programme will be introduced. Although alien eradication has been practiced intermittently at the quarry, this will be formalised with assistance from the Department of Agriculture and the Working for Water Programme.	N	Y	There is no alien plant eradication program in place.
2	The programme will concentrate initially on the riverine areas, clearing streambeds of syringa and castor oil plant	N	Y	The removal of alien plants along the watercourses has not taken place.
3	Black wattle will be harvested, taking care not to spread the seeds, and made available to the local community free of charge as a fuel source.	N/A	N/A	Rehabilitation has not commenced as yet.
4	Mined out areas and spoil sites will be covered with overburden, topsoiled and hydroseeded with an indigenous seed mix.	N/A	N/A	
5	Indigenous tree seedlings, such as the <i>Plumbago</i> , will be hand planted across rehabilitated areas	N/A	N/A	
6	Regular watering will be undertaken to ensure that grass becomes established and tree seedlings take root and develop.	N/A	N/A	
F: Animal Life				
1	No hunting or trapping will be allowed on the property.	Y	N	
2	Mining areas will be clearly demarcated with white-painted rocks. All areas outside of these rocks will be placed out of bounds.	Y	N	
3	Fires will not be allowed outside of authorised areas	Y	N	
4	Indigenous vegetation will be re-established as described above	N/A	N/A	Rehab has not commenced as yet
5	Riverine habitats will be re-instated as discussed in the following section	N/A	N/A	Rehab has not commenced as yet
G: Surface Water				
1	A stormwater management system will be designed and put in place, particularly around the plant and stockpile area	N	Y	No formal stormwater water management system is in place
2	A low berm will be pushed up around the entire rim of the stockpile/plant area, topsoiled and vegetated	Partially		The berm has been created, but this consists of crushed stone and has not been topsoiled and vegetated.
3	A line of white-painted rocks will be placed inside of the berm indicating the area of operation, and that which is out of bounds for any mining activity	N	N	The area of operation extends up as far as the berm – the limited space available makes it difficult to avoid this.
4	A 20m ³ concrete-lined sump will be constructed at the lowest point of the platform, near the confluence of the two tributaries	Y	N	The sump has been created.
5	The sump will be cleared of sediment on a regular basis, and the sediment disposed of in the old borrowpit to the east of the mining area	N	Y	The sump is cleaned out at time s but was choked with sediment at the time of the audit.
6	An excavator will be used to clean up the river bed of sediment, stone and rocks as far as possible. Hand labour with shovels and wheel barrows will be used to remove sediment from more inaccessible areas.	N	Y	No moves have been made as yet to pull material out of the streambeds – this will likely only be undertaken on closure.

NO	ACTIVITY	COMP Y/N	ACTION Y/N	COMMENT
7	The outer slopes of the platform, which border on the streams, will be covered with overburden, topsoil and allowed to revegetated with indigenous species	N/A	N/A	This will take place during final rehabilitation.
8	The alien control programme will focus on the eradication of alien species from the river beds and the prevention of any reoccurrence	N	Y	The eradication of alien plant species in the river bed has not commenced.
9	Stockpiling of stone will only be allowed at a distance further than 4m from the berm	Y	N	No stockpiling takes placed closer than 4m from the berm.
10	The 2 nd crossing created to access the borrowpit will be removed and the banks reinstated. All boulders will be used to fill voids within the borrowpit	N	Y	This river crossing has not been removed as instructed by DME, but it is not stopping the flow of water.
H: Water Quality				
1	Sufficient ablation facilities will be provided at the plant site, and at each of the mining sites. Any temporary facilities, such as portaloos, will be emptied on a regular basis and the contents disposed of at a permitted sewage treatment works	Y	N	Sufficient toilets provided.
2	All regular servicing of vehicles will take place at the workshops in Wilsonia except for tracked vehicles which are serviced on site using drip trays. Used oil is taken to the workshop for disposal	Y	N	Servicing takes place at the Wilsonia workshops, although a workshop is being established on site.
3	All vehicles will be kept in good working order to minimise the chance of emergency repairs	Y	N	
4	Drip trays will be kept on site and used to collect oil in the event of emergency repairs	N	Y	No drip trays – these must be provided and used for emergency repairs.
5	A supply of commercially available absorbent material, such as "Spillsorb" will be kept on site, and used in the event of spillages	N	Y	No spillsorb or similar is available on site
6	All scrapped equipment and vehicles will be removed from the site and sold to a scrap dealer for recycling	N	Y	Still a fair amount of scrap to be moved off site.
7	Care will be taken in the refuelling to vehicles to ensure that spillage is minimised.	Y	N	
8	An emergency action plan for spillages will be drawn up and communicated to staff through the environmental, health and safety awareness programme	N	Y	No emergency action plan for spillages.
I: Water Balance				
1	Water usage will be monitored.	Y	N	Water is provided via the municipal system and is metered accordingly.
J: Stormwater				
1	Diversion berms will be placed upslope of the borrowpit mining area to divert stormwater runoff away from the active mining area as shown in Drawing 02.	N	N	There is no diversion berm above the borrowpit, however, the road diverts runoff away from the face.
2	Diversion berms will be placed downslope of mining areas to contain dirty water runoff on the site and to channel it into a sump	Partially		There is a berm below the crusher site – need to ensure that all runoff is diverted via a sump or sediment trap before entering the river.

NO	ACTIVITY	COMP Y/N	ACTION Y/N	COMMENT
3	The sump will be cleaned regularly and the sediment disposed on in old mining voids.	N	Y	Sump must be cleaned more regularly.
K: Surface rehabilitation				
1	The streams will be cleaned up, the banks stabilised and further impact on the water quality prevented, in order to ensure that downstream water users are not impacted by the mining operations	N/A	N/A	Final rehab has not commenced as yet.
L: Groundwater				
1	Pollution control measures described above under Section 2.7.1 will be put in place to protect groundwater quality as much as that of the surface water	Partially		Drip trays and spillsorb (or drizit) must be provided. The new workshop must be equipped with a washbay and oil sump.
M: Air Quality				
1	Air quality within the mining and processing area is monitored by an independent body every three months, as per the requirements of the Mine Health and Safety Regulations	Y	N	Air Quality is monitored quarterly by Ecoserv.
2	Dust suppression takes place daily on all haul roads	Y	N	A dedicated water cart is proposed
3	Mist sprays will shortly be provided at all crushing points on the plant	Y	N	Mist sprays are in place.
4	Dust points are generally protected by dust hoods	Partially		Dust hood mainly in place – new plant will be equipped.
5	Crushers are fed via chutes to reduce dust	Partially		Chutes generally in place – new plant will be equipped.
6	Dust masks are provided to all mine personnel which are exposed to dust	Y	N	
7	Safety and Health signage indicating the use of dust masks and other protective equipment is visible throughout the plant	Partially		Additional specific signage is still required.
8	A comprehensive safety programme will be introduced and applied to all existing and new staff	Y	N	Are going for ISO18001 compliance through ASPASA
9	Lung Function tests are undertaken on all exposed staff on a regular basis. The company employs a fulltime nurse who visits the site every second Thursday for medical checkups	Y	N	
10	Each employee undergoes a full medical on an annual basis	Y	N	
N: Noise				
1	Noise levels are monitored on a quarterly basis by Ecoserve.	Y	N	Noise is monitored quarterly by Ecoserv.
2	Hearing protective devices are provided and used in noise areas which exceed the level of 85dB	Y	N	
3	Safety and Health signage indicating the use of Hearing Protective Devices and other protective equipment is visible throughout the plant	Partially		Additional specific signage is still required.
4	A comprehensive safety and health programme will be introduced and applied to all existing and new staff	Y	N	
O: Visual Impacts				
1	All loose, oversized boulders will be cleared from the mining sites and dumped in the old sabunga borrowpit to the east of the plant. Overburden will be placed on top of the boulders, and the site will	N	N	Oversized boulders will be broken up and crushed.

NO	ACTIVITY	COMP Y/N	ACTION Y/N	COMMENT
	ultimately be topsoiled and revegetated.			
2	Overburden will be placed over boulders which have been dumped over the bank to the west of the mining area, towards the access road. These boulders are on a steep slope and not accessible for removal. The slope will be topdressed and hydroseeded	N/A	N/A	This will not be necessary as per the revised mining plan.
3	The current mining face will be developed along the western side, towards the powerline. No further mining will take place along the eastern edge, and more visible side, of the existing face	Y	N	Mining has been in accordance with this.
4	The back face on the sabunga borrowpit will be benched and rehabilitated as above	N	Y	This is no longer possible or practical – the closure plan must be revised.
5	All scrap will be removed from the site for recycling	N	Y	Scrap still to be removed.
6	All domestic waste will be collected in rubbish bins which are scavenger proof. The bins will be emptied on a regular basis and the waste disposed of at a registered solid waste landfill site	Y	N	
7	No burning of waste, tyres etc will be allowed on site	Y	N	
8	The exposed benches of the quarry will face towards the north, and therefore away from the N2, thereby reducing the harsh visual impact of rock faces	N	Y	The revised development plan is such that more of the mining area will be visible – this must be covered in the revised EMP.
9	Final rehabilitation of benches as described in Section 2.2 above will allow for the revegetation of mining areas, thereby reducing the visual impact significantly	N/A	N/A	There will not be any benches according to the revised development plan – to be approved.
10	All white boulders which are used to designate the mining areas will be removed on closure	N/A	N/A	Rehab has not progress this far as yet.
P: Regional Socio-economic structure				
1	Employment, both casual and permanent, will be provided where possible to local residents of Exolweni Village	Y	N	Almost all labour is drawn from the neighbouring settlements.
2	Harvesting of black wattle for firewood will be allowed provided that it is supervised and the spread of seeds is prevented (ie should not harvest when seeds are set).	N	N	Black Wattle is not a problem – unauthorized access to the site is discouraged.
3	The company will continue to provide building stone and sabunga to the local construction industry	Y	N	
4	Water availability within the Exolweni Village will not be affected as the mine will abstract during the night in order to fill the 80 000l storage tank on site	Y	N	Water supply is via the municipal system and the village is not compromised.

ANNUAL PERFORMANCE ASSESSMENT REPORT FOR ST LUKES QUARRY



April 2009

PERFORMANCE ASSESSMENT OF THE ENVIRONMENTAL MANAGEMENT PROGRAMME
FOR THE MINING OF DOLERITE BY INDEPENDENT CRUSHERS IN THE MAGISTERIAL
DISTRICT OF EAST LONDON

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ANNUAL PERFORMANCE ASSESSMENT REPORT FOR ST LUKES QUARRY

April 2009

Prepared By

Reviewed By

Approved By

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DATE 9 April 2009	SIGNATURE	SIGNATURE	SIGNATURE

DISTRIBUTION LIST

<i>Name</i>	<i>Organisation</i>	<i>Date</i>
Derek Wynn	Independent Crushers	9 April 2009
Nkateko Mkhacane	Department of Minerals and Energy	9 April 2009
Jo Daneel	Terreco cc	9 April 2009

PREAMBLE

Section 55 of the Regulations pertaining to the Minerals and Petroleum Resources Act, Act 28 of 2002, makes provision for performance assessments of the Environmental Management Plan or Programme to be undertaken on a regular basis. This Report presents the findings of the second annual Performance Assessment which took place on the 07/04/2009. The assessment has been conducted in accordance with Section 55(3) of the Regulations. The assessment was undertaken by Terreco cc an East London based firm of independent environmental consultants, Terreco cc.

Both hard rock dolerite, which is crushed and sold commercially, and decomposed dolerite are mined at the St Lukes quarry. Production remains at the estimated at 40 000 tons of material per month. The mine has been operated for a number of years and with the proposed new mine development plan will have a life span exceeding another 15 years.

INFORMATION

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1 INTRODUCTION

Independent Crushers appointed Terreco Consulting to undertake their required Annual Performance Assessment of the Environmental Management Programme at their St Lukes mining operation on the outskirts of Mdantsane. The assessment is undertaken in accordance with the regulations pertaining to the Minerals and Petroleum Resources Development Act, Act No 28 of 2002.

The function of a Performance Assessment is to ensure that the mine owner and operator is acting in a manner that fulfils their obligations as stipulated in the approved Department of Minerals and Energy (DME) Environmental Management Programme. The EMPR was submitted to the DME in November 2003 and the mining licence renewed shortly thereafter.

2 SCOPE OF THE ASSESSMENT

The scope of the assessment includes the hard rock and decomposed dolerite mining operations as well as the crushing and stockpiling of the mined material. All of these activities take place on the Remainder of Portion 4 of Farm No 303 near Mdantsane. Associated activities such as the repairs and maintenance of on site machinery are included in the scope of this assessment. The assessment is limited to the mining area which falls within the property owned by Leo Trust.

3 APPROACH AND METHODOLOGY

The approach to the assessment is in keeping with the basic guidelines provided in Regulation 55 (3) of the Act. Prior to the site visit, the relevant documentation, detailed below, was studied, and the outline of the Performance Assessment report drafted. A site visit was undertaken by Mr Duncan Scott of Terreco on the morning of the 07/04/2009, accompanied by Mr Derek Wynn, mine manager for Independent Crushers. Following initial discussions, the entire operation was visited, including a drive around the mining, crushing and stockpile areas.

As was the case with the previous performance Assessment a checklist, based on the requirements of the EMPR, was completed while on site and forms the basis of this report. The checklist is included in APPENDIX C.

This Performance Assessment Report is submitted to the DME as well as the management of Independent Crushers.

Relevant documentation includes:

- Environmental Management Programme Report for St Lukes Quarry, East London. This report was produced by Terreco cc in November 2003 in response to a request from the Department of Minerals and Energy to upgrade the Rehabilitation Plan.
- The Minerals and Petroleum Resources Development Regulations, published in Government Gazette No. R. 527 (23 April 2004) under Section 107 (1) of the Minerals and Petroleum Development Act, Act No 28 of 2002).

4 EVALUATION CRITERIA

As per the requirements of current legislation the environmental performance of the mine owner and operator was evaluated against the requirements of the DME approved EMPR. The existing EMPR documentation was also evaluated for its effectiveness in achieving the requirements of the Minerals and Petroleum Resources Development Act. Current conditions on site were compared with the originally anticipated effectiveness of the control and mitigation measures stipulated in the EMPR. The requirements of other relevant legislation (eg Hazardous Substances Act) were referred to. Furthermore, the BATNEEC (Best Practice not Entailing Excessive Cost) principle was used when assessing elements of the company's activities.

5 FINDINGS

5.1 Geology

Impact Description: Considering that this is a mining activity, impacts on the geology are unavoidable. Measures are however stipulated in the EMPR to minimise this impact.

Management Action: The recovery of oversized boulders for use in rehab and the designation of mining areas to avoid mining where rock is less that suitable.

References: EMPR (November 2003); Section 2.1

Findings: Mining currently takes place within the designated and approved mining area. Oversized produced during mining is broken down and crushed. The old deposits of oversized deposited along the side slopes will eventually also go through the crushing process.

Compliance:	The site complies with the EMPR.
--------------------	---

5.2 Topography

Impact Description: The topography is usually an unfortunate causality of open cast mining methods. As stated in the previous report the original shape of the hillside has been severely altered by mining activities to date. This trend will continue as the mine develops.

Management Action: The EMPR calls for the benching of quarry faces (9mx9m) and the sloping of the top 9m to a 1:3 slope. The existing back face of the sabunga borrowpit is to be mined as per the new mine development plan.

References: EMPR (November 2003); Section 2.2

Findings: Benches remain on the quarry faces along the southern, western and northern boundaries of the excavation. Those along the western and southern boundaries will remain while as per the new proposed development plan the benches along the northern edge will be removed during future mining. Additional benching will be created as the quarry advances towards the crusher yard.

It is imperative that the EMPR and the development and closure plans to be included in the new mine plan reflect this mining strategy.

The decomposed dolerite (sabunga) has not been shaped or benched. It is the intention of the mine operator to extend the borrowpit face further into the slope.

Compliance:	The site currently complies with the approved EMPR. The new EMPR to be submitted with the mining license conversion application should accurately reflect and assess the new proposed mining plan.
--------------------	---

5.3 Soils

Impact Description: In South Africa topsoil is a precious resource. It must therefore wherever possible on mine sites be preserved and protected for use during rehabilitation. Mismanagement of this resource mining will result in the loss, contamination or compaction of topsoil which will hamper rehabilitation in the long term.

Management Action: The EMPR indicates the removal of topsoil and subsoil and the storage of these materials in separate stockpiles, protected from erosion and revegetated with indigenous species.

References: EMPR (November 2003); Section 2.3.

Findings: During mine establishment and expansion topsoil is stripped and stockpiled. It appears that this was originally done in a haphazard manner. This seems to have improved with designates topsoil stockpiles now established away from the mining area. Topsoil and overburden is no longer being mixed while stockpiling. The older topsoil stockpiles remain invaded with alien plant species.

A topsoil audit has not been undertaken and it is not clear at this stage whether there will be sufficient reserves on site to facilitate the necessary rehabilitation. However the mine operator has undertaken to import topsoil and does so whenever possible. It is advised that this practice continue. This imported topsoil is stored in the new designated topsoil stockpile area along the north eastern boundary of the site. Topsoil stockpiles do exceed 1.5m in height in places.

Compliance: Although not ideal the level of compliance with regard to the removal and stockpiling of topsoil on site has improved with overburden and topsoil no longer mixed while stockpiling. Further stormwater protection is required at the topsoil stockpiling areas.

5.4 Land Capability

Impact Description: The EMPR states that the mining area will be returned to bushveldt (original landuse).

Management Action: To implement that closure and rehabilitation measures outlined in the EMPR.

References: EMPR (November 2003); Section 2.4.

Findings: Not able to assess as the mine is still operational.

Compliance: Not able to assess as the mine is still operational, although the long-term objective has not been compromised.

5.5 Natural Vegetation

Impact Description: The following specific threats to the local and surrounding vegetation are represented by the following activities:

- Wood collecting by neighbouring communities
- Clearing for mining operations
- Invasion of alien species, such as black wattle, the castor oil bush, Syringa and Lantana spp.
- Pollution and sedimentation of drainage lines may effect riverine trees

A fairly large number of alien invasive species have and continue to develop in disturbed areas on site. These include the following:

- Castor Oil Plant (*Ricinis communis*)
- *Syringa* spp.
- *Lantana* spp.
- Peanut butter cassia (*Cassia didymobotria*)

Black Wattle (*Acacia maerensii*) is widespread throughout the area and occurs well within the Valley Thicket. *Lantata camara* has since the last assessment also begun to become more widely distributed on the property as is the case in the surrounding environment.

Management Action: The EMPR calls for the eradication of all alien invasive plant species starting with those occupying the drainage lines. Provision is made for an Alien Plant Control Programme which will help facilitate the removal of these species. The EMPR details the rehabilitation and revegetation measures to be employed during mine closure.

References: EMPR (November 2003); Section 2.5.

Findings: As stated in the previous assessment report the presence of alien invaders remains an issue on site. There remains no Alien Plant Control Programme in place. There is little evidence that effort has been made to remove these plants from within the drainage lines or stockpile areas. However it does seem that the plants are being removed from the areas disturbed by the mining and crushing activities as well as at the site camp and workshop areas.

Compliance: **The site does not comply with the stipulations of the EMPR. Alien plant species eradication is only taking place in selected areas albeit that those areas cover the majority of the mine property.**

5.6 Animal Life

Impact Description: Indigenous mammal life on the site and its immediate surrounds is most likely limited to small rodents, reptiles (lizards, skinks etc) and birds due to the level of activity, habitat disturbance and noise. No protected or endangered species are likely affected by the current operations. The degree to which this is relevant to the proposed expansion of the mine area must be assessed during the investigations required for the preparation of the documents for the new mine development and expansion proposal. The two streams which confluence below the stockpile area

have been highly impacted by mining activities in the past. Consequently they are not expected to support a rich and diverse animal community. Regardless of that fact measures should still be taken to protect the remaining animal life and, more importantly, their habitat.

Management Action: The EMPR makes provision for the prevention of hunting or trapping and the protection of animal habitat.

References: EMPR (November 2003); Section 2.6.

Findings: While issues such as hunting and trapping and the prevention of fires are being implemented, the protection and/or rehabilitation of habitat (as outlined in Section 5.5 above) requires attention.

Compliance:	The mine generally complies with the EMPR. In accordance with the recommendations of the previous report it is suggested that more emphasis should be placed on the protection and rehabilitation of the watercourses.
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5.7 Surface Water

Impact Description: Surface water sources in the area consist of two perennial un-named tributaries of the Rwantsa River. The Rwantsa is in turn a tributary of the larger Nahoon River. The western tributary remains dammed above the main access road. Stream banks remain highly impacted by mining operations. This is particularly true in the areas surrounding the decomposed dolerite (sabunga) borrowpit and the product stockpile areas. Oversized boulders have been used to fill the stream at the point where it is crossed by the quarry access road and the crossing to the borrowpit. The areas utilised for the stockpiling of crushed product have remain encroached on the banks of the streams. Fine sediment, possibly crusher dust, was discovered downslope of the sediment trap (sump). This has the effect of smothering vegetation and impacting on the stream bed.

Management Action: The EMPR makes provision for a stormwater management system, involving a low berm around the perimeter of the crusher yard and the installation of a sediment trap (sump). The EMPR stipulates that the material which has encroached into the stream bed be removed and that the water courses be protected from further damage. The stream crossing to the sabunga borrowpit must be removed and all alien invader species eradicated from the water courses.

References: EMPR (November 2003); Section 2.7.

Findings: The boundary of the operations has not been pulled back from the water courses. However the berm has now been topsoiled and according to the mine manager is to be planted in the near future.

The audit revealed that although a stormwater management system has been put in place it does not seem that it is completely effective. Evidence of this was the discovery of fine sediment (most likely crusher dust) beyond the sediment trap that is supposed to prevent the off site transport of such material. The sump was largely filled and it is suggested that it be emptied more regularly. Once the sump has filled to 75% percent of its maximum capacity the contents must be removed to the approved stockpile area as stipulated in the EMPR.

Stormwater is therefore not completely contained on site and filtered before release into the surrounding environment.

The eradication of alien plant species within the water courses has not yet taken place as described in Section 5.5.

Compliance: The site does not fully comply with the EMPR. Further investigation, design and reconstruction of the stormwater management system are required.

5.8 Water Quality

Impact Description: Water quality was not tested to the commencement of mining activities. It is likely the local streams that run through and adjacent to the mine site will have a high TDS especially after heavy rainfall events. During such instances runoff from the stockpile area is likely to enter the drainage lines (as identified within the area of the sump). Other threats to local water quality include hydrocarbon spillage and sewage. Diesel is stored on site in a tank placed within a bunded area. There is also a small workshop for maintenance on loader equipment.

Management Action: The EMPR makes provision for adequate ablation facilities and safe storage, handling and disposal of any hazardous wastes (such as hydrocarbons). An Emergency Action Plan for spillages is required.

References: EMPR (November 2003); Section 2.7.1.

Findings: Sufficient ablutions remain adequate and in sufficient quantity. Diesel remains stored in a bunded area.

There is no Emergency Action Plan for spillages and no drip trays or absorbent materials (eg. Drizit) are kept on site. With the workshop now operating on site it is important that a hazardous waste management system is included into the EMPR currently being prepared for the new mining licence conversion application.

Compliance: The site does not fully comply with the EMPR.

5.9 Water Balance

Impact Description: The injudicious use of water may result in wastage and may compromise other users.

Management Action: Water usage is to be monitored.

References: EMPR (November 2003); Section 2.7.2.

Findings: Water is supplied via the municipal reservoir in Mdantsane. The water usage is metered.

Compliance:	The site complies with the EMPR.
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5.10 Stormwater

Impact Description: It is important to separate the clean water runoff and the dirty water runoff generated on site. The runoff that originates from within the mining area likely has a high sediment load with possible pollutants and should be treated before being allowed to move off site.

Management Action: The EMPR makes provision for the erection of diversion berms and sumps for settling out of sediment.

References: EMPR (November 2003); Section 2.7.3.

Findings: Refer to Section 2.7. There is no stormwater management plan in place. The effectiveness of the current stormwater management system is disputable. Evidence of material from site bypassing the sump was discovered during the audit.

Compliance:	The site does not fully comply with the EMPR.
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5.11 Surface Rehabilitation

Rehabilitation of the site has not commenced therefore this section is not relevant to this performance assessment.

5.12 Groundwater

Impact Description: The operations do not impact directly on groundwater levels. In extreme cases, the mining and associated activities may impact on groundwater quality. No groundwater abstraction takes place on site.

Management Action: Pollution control measures described above under Section 5.8 will be put in place to protect groundwater quality as much as that of the surface water.

References: EMPR (November 2003); Section 2.8.

Findings: Refer to Section 5.8.

Compliance: The site does not fully comply with the EMPR.

5.13 Air Quality

Impact Description: Dust generated during mining and crushing is the main concern regarding impacts to local air quality. Inhalation of excessive dust, particularly from the crusher plant, can have detrimental consequences for human health. Excessive dust will smother plants in the surrounding environment.

Management Action: The EMPR makes provision for dust suppression along the haul roads and at the crusher plant. All staff at risk is to undergo awareness training and be equipped with dust masks. Regular health checks and dust monitoring are required.

References: EMPR (November 2003); Section 2.9.

Findings: Quarterly dust monitoring still regularly undertaken by EcoServ. Dust suppression takes place along the haul roads and access road. The crusher plant is equipped to with dust shoots, hoods and mist sprays. A recent Health and Safety inspection was undertaken by the DME (March 2009). Labour undergo annual lung function tests and medicals.

Compliance: The site complies with the EMPR.

5.14 Noise

Impact Description: Excessive noise may be damaging to human health.

Management Action: The EMPR makes provision for annual staff medicals and for the monitoring of noise levels. Workers must be protected against the harmful effects of exposure to high levels of noise.

References: EMPR (November 2003); Section 2.10.

Findings: Staff remains equipped with hearing protection devices. Noise monitoring is undertaken by EcoServ on a quarterly basis. Annual medicals are undertaken.

Compliance: The site complies with the EMPR.

5.15 Visual Impacts

Impact Description: The proposed future extensions of the mine (as discussed on site with the Mine Manager) will likely result in an increased visual impact during the operational phase of the project. The proposal will be described in detail in the new mining development plan that is to be submitted to the DME as part of the conversion to the new order mining license. The quarry area is to extend downslope toward the crusher yard which is likely to make it more exposed to viewing from the N2 road.

Affair amount of scrap metal remains stored on site. This is kept within a fairly hidden location at the base of the mine area and therefore does not represent a significant visual impact.

Management Action: The management actions outlined in the EMPR relate mainly to the final rehabilitation of the mining area and describe how the mine is to be developed further. All scrap must be removed from site and the area rehabilitated and revegetated as outlined in Section 2.2 of the EMPR.

References: EMPR (November 2003); Section 2.12.

Findings: It is accepted that it will only be practical to undertake most of the rehabilitation work once mining has ultimately been completed. The proposed new mine development plan will likely have implications regarding the visual impact of quarry. This must be addressed in the revised EMPR that is to be submitted to the DME

Compliance:	Currently partial compliance. The proposed changes to the development strategy will deviate further from the current EMPR and must be authorised by the authority.
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5.16 Regional Socio-Economic Structure

Impact Description: The mining operations underway at St Lukes Quarry have the potential to generate a range of negative and positive impacts on both the local and regional socio-economic structure. The EMPR states that the aim of the company is to minimise potential negative impacts and maximise benefits.

Management Action: Provision has been made for the employment of labour sourced from the neighbouring communities. St Lukes Quarry will continue to contribute positively to the local economy by providing building materials.

The Mine Manager has indicated that as part of their new social and labour plan (part of new license application) they will provide funding for the creation and support of small businesses within the surrounding communities.

The local community will not be compromised by the supply of water to the quarry.

References: EMPR (November 2003); Section 2.12.

Findings: Employees generally sourced from the surrounding communities. As water is supplied via the municipal system there is no impact on the neighbouring settlements water supply.

Compliance: The site complies with the EMPR.
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5.17 Interested and Affected Parties

Management Action: In order to minimise the impact on IAPs, to not transgress their rights and responsibilities and to meet their requirements, the following measures will be undertaken:

- Good relations with neighbouring communities will be maintained through ongoing consultation.
- An alien plant eradication programme will be drawn up in conjunction with the Department of Agriculture (part of new licence application).
- An Environmental Health and Safety awareness and training programme will be developed (part of new licence application).

References: EMPR (November 2003); Section 2.14.

Findings: Good relations are maintained with the local community and means of providing support them are being discussed (forms part of new licence application social and labour plan). An alien plant eradication programme is being developed and will be included into the new EMPR that will support their application for a conversion to a new order mining license.

Compliance: The site complies partially with the EMPR.
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5.18 Education and Training

Management Action: For effective environmental management to be achieved on site it is important for all management and labour to be informed of the programme and the stipulations

that the DME will enforce to ensure that the mining activities have the smallest impact. Therefore it is important that an environmental awareness programme is incorporated into the new EMPR for the quarry. It is then also critical that the new programme is implemented effectively and the information disseminated to all staff working at the quarry. The Mine Manager must also develop a system that can be used to penalise any person/s that are found to have deliberately transgressed the conditions and stipulation as set out in the DME approved EMPR.

References: EMPR (November 2003); Section 2.15.

Findings: No environmental awareness programme has been implemented. It is strongly suggested that this forms part of the new EMPR that will be submitted in support of the new mining license application.

Compliance: **The site does not comply with the EMPR.**

6 ASSESSMENT OF FINANCIAL PROVISION

Table 1 of the EMPR provides a Maintenance and Rehabilitation Programme which included costs as calculated in September 2007. The total cost was R211, 200.00. A table has been included overleaf indicating the previous table, where activities are still relevant and the updated or escalated costs. The current cost for rehabilitation is estimated at R 242, 860.00

Financial provision has been lodged with Nedbank, with the balance indicated at roughly R200,000.00 (as confirmed on 9/04/2009). Based on the table overleaf, this amount is less than the current prediction of rehabilitation costs.

7 ASSESSMENT OF THE EXISTING EMPR

The current Environmental Management Programme Report was compiled under the previous Minerals Act of 1991. This Act has been superseded by the new Minerals and Petroleum Resources Development Act, Act 28 of 2002 which came into affect on the 1 May 2004. In order for the company to comply with the provisions of the new Act, they are required to convert from the old order Mining License to the new Mining License issued in terms of the new Act. Part of this conversion involves updating the environmental management programme.

The proposed changes to the mining development plan, as discussed with Mr Wynn on the 07/04/2009, will need to be authorised by the DME. This will form part of the application for the conversion to the new order Mining License. It is suggested that these be addressed in the revised and updated EMPR undertaken in terms of the new regulations.

8 CONCLUSIONS

Efforts have been made to control the runoff of sediment laden stormwater from site, the shaping (benching) of the quarry and the health and safety impacts to surrounding landusers and staff on site. However there still remains a notable amount of non-compliance with regard to the requirements of the DME approved EMPR (2003).

On site discussion with site management has established that a number of changes are proposed for the manner in which the site will be mined in future. It is imperative that those changes, and the potential impacts that may result, are addressed in the revised EMPR that will be submitted in support of the company's application for conversion to the new order Mining License under the new MPRDA.

Is it recommended that the current balance of the financial guarantee be increased to the amount predicted for expected rehabilitation costs (approximately R 242, 860.00).

Table 1: Maintenance and Rehabilitation Programme

YEAR*	AREA	ACTIVITY	MAN. PLAN ref	ZONE Refer to Drawing 03	EQUIPMENT	COST (2007)	REVISED COST (2009) ¹	COMMENT
1	QUARRY	<ul style="list-style-type: none"> Remove all loose oversized boulders from pit floor and dump in old sabunga borrowpit void. Cover with overburden, topsoil and vegetate. 	2.12	1	EXCAVATOR BELL ADT DOZER	25000	28500	Not completed – may not be applicable in new EMPR.
	QUARRY	<ul style="list-style-type: none"> Remove top boulders from slope to the west of mine pit, towards access road. Dump in old sabunga void. Cover remaining boulders with overburden. Topsoil and hydroseed, plant indigenous tree saplings. 	2.12	2	EXCAVATOR BELL ADT DOZER	16000	18500	Not completed – will likely change with new EMPR.
	BORROWPIT	<ul style="list-style-type: none"> Diversion berms put in place above borrowpit. 	2.7.3	3	EXCAVATOR	4500	5050	Not completed.
	BORROWPIT	<ul style="list-style-type: none"> Remove river crossing to sabunga borrowpit, placing boulders in borrowpit void. Re-instate stream banks and channel. 	2.7	4	EXCAVATOR BELL ADT DOZER	14500	16800	River crossing still in place.
	BORROWPIT	<ul style="list-style-type: none"> Bench southern extreme of borrowpit, topsoil and revegetated. 	2.12	5	DOZER	12000	13500	Not completed – will likely change with new EMPR.
	STOCKPILE / PLANT	<ul style="list-style-type: none"> Clean out sediment from river bed. Pull back stone chip and boulders from stream edge. Stabilise stockpile platform banks with overburden, topsoil and revegetated. 	2.7	6	EXCAVATOR BELL ADT DOZER	16000	18500	Partially completed.
	STOCKPILE / PLANT	<ul style="list-style-type: none"> Create containment berm around stockpile / plant area. Topsoil and vegetate. Construct settlement sump at lowest point. 	2.7	7	EXCAVATOR BELL ADT DOZER	8500	10000	Partially Completed.

¹ For the purpose of this exercise an annual escalation of 15% was applied.

YEAR*	AREA	ACTIVITY	MAN. PLAN ref	ZONE Refer to Drawing 03	EQUIPMENT	COST (2007)	REVISED COST (2009)¹	COMMENT
	SCRAP AREA	<ul style="list-style-type: none"> Remove all scrap for sale to scrap merchant. 	2.12	8	---	700	840	Partially Completed.
	PLANT	<ul style="list-style-type: none"> Install mist sprays. 	2.9	9	---	3000	3350	Completed.
	PLANT	<ul style="list-style-type: none"> Introduce drip trays and "spillsorb". 	2.7.1	9	----	1500	1700	Not completed.
	ALL	<ul style="list-style-type: none"> Designate legal areas of activity with white-painted boulders. Anything outside the boulders is declared out of bounds 	2.2	All	---	700	840	Partially Completed.
	ALL	<ul style="list-style-type: none"> Introduce an alien plant eradication programme. Undertake alien plant eradication as part of on going maintenance plan. 	2.5	All	---	8700	10100	Not completed.
	ALL	<ul style="list-style-type: none"> Design and institute an environmental, health and safety awareness and training programme. 	2.9 / 2.10	All	---	3000	3400	Not completed.
	ALL	<ul style="list-style-type: none"> Develop an emergency action plan for spillages. 		All	---	700	840	Not completed.
	ALL	<ul style="list-style-type: none"> Undertake a topsoil audit to establish availability. 		All	---	1500	1700	Not completed.
Subtotal A						79 500	133620	
2-22	ALL	<ul style="list-style-type: none"> Undertake alien plant eradication as part of on going maintenance plan. 	2.5	All	---	8800	10100	Not completed.
3	BORROWPIT	<ul style="list-style-type: none"> Bench, top soil and rehabilitate sabunga borrowpit. 		All	EXCAVATOR BELL ADT DOZER	17500	20200	Not completed – will likely change with new EMPR.
Subtotal B						26 300	30300	
TOTAL TABLE 1						142 600	163920	

Table 2: Decommissioning and Aftercare Programme

YEAR*	AREA	ACTIVITY	MAN. PLAN ref	ZONE Refer to Drawing 03	EQUIPMENT	COST	REVISED COST	COMMENT
1	PLANT	<ul style="list-style-type: none"> Dismantle and remove plant and weighbridge. Demolish all buildings and dispose of rubble in pit void (to be covered with overburden). Demolish concrete slabs and dispose as above. 	3.2	9	EXCAVATOR BELL ADT DOZER	27800	31990	NOT COMPLETED.
1	STOCKPILE AREA	<ul style="list-style-type: none"> Remove all stockpiled stone chip as well as waste stone. Rip surface and top soil. Revegetate. 	3.2	9	EXCAVATOR BELL ADT DOZER	4500	5050	NOT COMPLETED.
1	HAUL ROADS	<ul style="list-style-type: none"> Rip all haulroads, topsoil and vegetate. 	3.4.2	11	DOZER	14500	16800	NOT COMPLETED.
1	MINING AREAS	<ul style="list-style-type: none"> Rehabilitate remaining exposed benches and pit floor as described in management plan. 	3.4.1	12	DOZER	10000	11700	NOT COMPLETED.
1	ALL	<ul style="list-style-type: none"> Remove white painted rocks. 	3.4	All	---	4000	4200	NOT COMPLETED.
1	ALL	<ul style="list-style-type: none"> Clean up entire area of any remaining waste, oil spills etc. 	3.2	All	---	2000	2500	NOT COMPLETED.
Subtotal						62800	72240	
2	ALL	<ul style="list-style-type: none"> Monitor the re-establishment of vegetation and invasion of alien species. Take necessary measures to rectify situation should vegetation not be re-establishing successfully. Monitor erosion on site and stabilise surfaces if required. 	3.5		---	5800	6700	NOT COMPLETED.
Subtotal						5800	6700	
Total Table 2						68 600	78 940	
Table 1 + Table 2						211 200	242 860	Revised Costs

APPENDIX A:

SITE PLAN

APPENDIX B:
PHOTOGRAPHS

APPENDIX C:

CHECKLIST

Date: 07 April 2009

Auditor: D. Scott (for TERRECO)

NO	ACTIVITY	COMP Y/N	ACTION Y/N	COMMENT
A: Geology				
1	All oversized rocks and boulders which cannot be crushed will be used to fill up voids left by the mining activities.	N	N	Oversized material broken up (with hammer equipment) and crushed on regular basis.
2	The mining areas will be clearly designated. No mining will be undertaken in areas where the reserves have not been fully proven, therefore preventing any unnecessary and wasteful mining.	Y	N	The mining area is clearly designated.
B: Topography				
1	Quarry faces will be benched with 9 m high x 9 m wide benches.	Y	N	
2	The top 9m will be graded to a 1:3 slope.	N	Y	The mining plan has not changed for existing southern slopes above benches. This must still be done.
3	The sharp, harsh profile of the benches will be softened by backfilling with waste rock and overburden.	N/A	N/A	There will be no mining benches created with the revised mining plan.
4	The back face of the Sabunga Borrowpit will be benched and shaped to resemble natural contours.	N	N	Rehab as originally proposed is no longer possible – additional mining will still be undertaken here. Will form part of application for new order mining license.
5	The old sabunga pit to the east of the property will be filled with oversized waste rock and overburden.	Y	N	To be undertaken during closure.
C: Soils				
1	Topsoil will be stripped from all mining areas, and surfaces which will be compacted or covered during the course of mining operations, eg stockpile areas, workshops, offices, roads etc.	Y	N	Topsoil continues to be removed from areas disturbed during the mining process.
2	The A-horizon (dark brown, humic-rich topsoil) will be stripped and stockpiled in designated stockpile areas.	Y	N	There no longer seem to be mixing of topsoil and subsoils taking place.
3	Sub-soil will be stripped and stockpiled in a similar fashion separate to the A-horizon.	Y	N	See above.
4	Topsoil stockpiles will consist of uncompacted heaps not exceeding 1.5m in height.	Partially		Stockpiles generally higher than 1.5m. Future stockpiles must all be less than that height.
5	Topsoil stockpiles will be vegetated with indigenous species in order to maintain biological activity and viability in the long term.	N	Y	Stockpiles remain invaded by alien vegetation species. The mine representative indicated that temporary labour is employed to remove alien species but the problem still remains.
6	Topsoil stockpiles will be protected from erosion through the placement of stormwater diversion berms on the upslope side of the heaps.	N	N	Stockpiles covered with vegetation and not vulnerable to erosion.
7	An audit will be undertaken to measure the volume of topsoil available. A calculation will be made of the required volumes for final rehabilitation of the site. Should there be a deficit, an alternative sources (eg from construction sites)	N	Y	Additional topsoil is imported onto site whenever possible in order to provide for rehabilitation measures.

NO	ACTIVITY	COMP Y/N	ACTION Y/N	COMMENT
	will be identified and the topsoil brought onto site and stockpiled for use in the final rehabilitation.			
D: Land Capability				
1	The site will be rehabilitated and revegetated to facilitate the return of indigenous valley bushveld.	Y	N	Remains the planned end use.
E: Vegetation				
1	An Alien Plant Control Programme will be introduced. Although alien eradication has been practiced intermittently at the quarry, this will be formalised with assistance from the Department of Agriculture and the Working for Water Programme.	N	Y	Still no alien plant eradication programme developed. Informal eradication activities undertaken using locally sourced temporary labour.
2	The programme will concentrate initially on the riverine areas, clearing streambeds of syringa and castor oil plant.	N	Y	Even though no formal programme is in place there is an ongoing informal eradication process.
3	Black wattle will be harvested, taking care not to spread the seeds, and made available to the local community free of charge as a fuel source.	N/A	N/A	Rehabilitation procedures not yet underway.
4	Mined out areas and spoil sites will be covered with overburden, topsoiled and hydroseeded with an indigenous seed mix.	N/A	N/A	
5	Indigenous tree seedlings, such as the <i>Plumbago</i> , will be hand planted across rehabilitated areas.	N/A	N/A	
6	Regular watering will be undertaken to ensure that grass becomes established and tree seedlings take root and develop.	N/A	N/A	
F: Animal Life				
1	No hunting or trapping will be allowed on the property.	Y	N	
2	Mining areas will be clearly demarcated with white-painted rocks. All areas outside of these rocks will be placed out of bounds.	Y	N	The mine area generally demarcated with large rocks. Not all are painted white but are large enough to represent an easily noticeable boundary.
3	Fires will not be allowed outside of authorised areas.	Y	N	
4	Indigenous vegetation will be re-established as described above.	N/A	N/A	Rehabilitation procedures not yet underway.
5	Riverine habitats will be re-instated as discussed in the following section.	N/A	N/A	Rehabilitation procedures not yet underway.
G: Surface Water				
1	A stormwater management system will be designed and put in place, particularly around the plant and stockpile area.	N	Y	An earth berm, covered with topsoil and to be planted with grass, has been constructed around the base of the plant and stockpile area. This directs water toward the existing sump. The effectiveness of the system is questionable as material was found downslope of the sediment trap. The system needs to be revised and a more effective solution developed.

NO	ACTIVITY	COMP Y/N	ACTION Y/N	COMMENT
2	A low berm will be pushed up around the entire rim of the stockpile/plant area, topsoiled and vegetated.	Partially		The berm has been topsoiled but not yet vegetated.
3	A line of white-painted rocks will be placed inside of the berm indicating the area of operation, and that which is out of bounds for any mining activity.	N	N	The limited space available makes it difficult to achieve this requirement.
4	A 20m ³ concrete-lined sump will be constructed at the lowest point of the platform, near the confluence of the two tributaries.	Y	N	The sump has been built but its effectiveness is questioned. Crushed material that flowed off site during a concentrated rainfall event has moved beyond the trap.
5	The sump will be cleared of sediment on a regular basis, and the sediment disposed of in the old borrowpit to the east of the mining area.	N	Y	Although the sump was not filled to capacity at the time of the audit it was nearly at maximum capacity. There was also evidence of recent overflows of the downslope side of the sump.
6	An excavator will be used to clean up the river bed of sediment, stone and rocks as far as possible. Hand labour with shovels and wheel barrows will be used to remove sediment from more inaccessible areas.	N	Y	To only be undertaken on closure.
7	The outer slopes of the platform, which border on the streams, will be covered with overburden, topsoil and be allowed to revegetate with indigenous species.	N/A	N/A	Rehabilitation procedures not yet underway.
8	The alien control programme will focus on the eradication of alien species from the river beds and the prevention of any reoccurrence.	N	Y	While alien eradication is practiced in areas directly disturbed during the mining project to date there has been no significant removal of such plants from the river bed area.
9	Stockpiling of stone will only be allowed at a distance further than 4m from the berm.	Y	N	Meets requirements.
10	The 2 nd crossing created to access the borrowpit will be removed and the banks reinstated. All boulders will be used to fill voids within the borrowpit.	N	Y	This river crossing remains intact. It provides access to the workshop and scrap metal storage areas. The flow of water is not stopped. It flows through a culvert placed at the base of the crossing.
H: Water Quality				
1	Sufficient ablution facilities will be provided at the plant site, and at each of the mining sites. Any temporary facilities, such as portaloos, will be emptied on a regular basis and the contents disposed of at a permitted sewage treatment works.	Y	N	Adequate number of toilets provided.
2	All regular servicing of vehicles will take place at the workshops in Wilsonia except for tracked vehicles which are serviced on site using drip trays. Used oil is taken to the workshop for disposal.	Partially		Truck servicing takes place at the Wilsonia workshops. Maintenance work on loaders done at site workshop. No drip trays available. No sump or oil and water separator system at on site workshop.

NO	ACTIVITY	COMP Y/N	ACTION Y/N	COMMENT
3	All vehicles will be kept in good working order to minimise the chance of emergency repairs	Y	N	
4	Drip trays will be kept on site and used to collect oil in the event of emergency repairs	N	Y	No drip trays provided for emergency repairs.
5	A supply of commercially available absorbent material, such as "Spillsorb" will be kept on site, and used in the event of spillages	N	Y	No absorbent materials stored on site
6	All scrapped equipment and vehicles will be removed from the site and sold to a scrap dealer for recycling	N	Y	Fairly large amount of scrap still stored in area adjacent to on site workshop.
7	Care will be taken in the refuelling to vehicles to ensure that spillage is minimised.	Y	N	
8	An emergency action plan for spillages will be drawn up and communicated to staff through the environmental, health and safety awareness programme	N	Y	No emergency action plan for spillages in place.
I: Water Balance				
1	Water usage will be monitored.	Y	N	Water drawn from the municipal system and metered accordingly.
J: Stormwater				
1	Diversion berms will be placed upslope of the borrowpit mining area to divert stormwater runoff away from the active mining area as shown in Drawing 02.	N	N	There remains no diversion berm above the borrowpit. The road upslope of the pit diverts runoff away from the face.
2	Diversion berms will be placed downslope of mining areas to contain dirty water runoff on the site and to channel it into a sump.	Partially		There is a berm below the crusher site but the effectiveness of the stormwater management system in ensuring that no transported sediments escape from site is debatable. Crushed product material was identified downslope of the sump.
3	The sump will be cleaned regularly and the sediment disposed on in old mining voids.	N	Y	Sump was almost filled to capacity. It must be cleaned more regularly. It is suggested that the sump content should be emptied once 75% of maximum sump capacity has been reached.
K: Surface rehabilitation				
1	The streams will be cleaned up, the banks stabilised and further impact on the water quality prevented, in order to ensure that downstream water users are not impacted by the mining operations.	N/A	N/A	To be undertaken during final site rehabilitation.
L: Groundwater				
1	Pollution control measures described above under Section 2.7.1 will be put in place to protect groundwater quality as much as that of the surface water.	Partially		No drip trays or absorbent materials (eg. spillsorb or drizit) provided on site. The workshop is not equipped with a washbay or oil sump.

NO	ACTIVITY	COMP Y/N	ACTION Y/N	COMMENT
M: Air Quality				
1	Air quality within the mining and processing area is monitored by an independent body every three months, as per the requirements of the Mine Health and Safety Regulations.	Y	N	Air Quality monitored quarterly by Ecoserv.
2	Dust suppression takes place daily on all haul roads.	Y	N	Dedicated water cart used daily.
3	Mist sprays will shortly be provided at all crushing points on the plant.	Y	N	Mist sprays in place.
4	Dust points are generally protected by dust hoods.	Y	N	Dust hoods in place – recent DME H&S inspection during March 2009.
5	Crushers are fed via chutes to reduce dust.	Y	N	Chutes in place – recent DME H&S inspection during March 2009.
6	Dust masks are provided to all mine personnel who are exposed to dust.	Y	N	
7	Safety and Health signage indicating the use of dust masks and other protective equipment is visible throughout the plant.	Y	N	Additional specific signage requested during last audit now in place.
8	A comprehensive safety programme will be introduced and applied to all existing and new staff.	Y	N	
9	Lung Function tests are undertaken on all exposed staff on a regular basis. The company employs a fulltime nurse who visits the site every second Thursday for medical checkups.	Y	N	
10	Each employee undergoes a full medical on an annual basis.	Y	N	
N: Noise				
1	Noise levels are monitored on a quarterly basis by Ecoserv.	Y	N	Noise monitored quarterly by Ecoserv.
2	Hearing protective devices are provided and used in noise areas which exceed the level of 85dB.	Y	N	
3	Safety and Health signage indicating the use of Hearing Protective Devices and other protective equipment is visible throughout the plant.	Y	N	Additional specific signage requested during last audit now in place.
4	A comprehensive safety and health programme will be introduced and applied to all existing and new staff.	Y	N	
O: Visual Impacts				
1	All loose, oversized boulders will be cleared from the mining sites and dumped in the old sabunga borrowpit to the east of the plant. Overburden will be placed on top of the boulders, and the site will ultimately be topsoiled and revegetated.	N	N	Oversized material broken up (with hammer equipment) and crushed on regular basis.
2	Overburden will be placed over boulders which have been dumped over the bank to the west of the mining area, towards the access road. These boulders are on a steep slope and not accessible for removal. The slope will be topdressed and hydroseeded.	N/A	N/A	No longer necessary as per the revised mining plan that will form part of the new mining license conversion application to be submitted end April 2009.
3	The current mining face will be developed along the western side, towards the powerline. No further mining will take place along the eastern edge, and more visible side, of the existing face.	Y	N	Mining has followed this plan to date. However the new mining plan that is being developed proposes the expansion of the quarry in a northerly direction

NO	ACTIVITY	COMP Y/N	ACTION Y/N	COMMENT
				towards the crusher area. This will increase the visual impact in future as this area of mining will be visible from the nearby N2 road.
4	The back face on the sabunga borrowpit will be benched and rehabilitated as above.	N	Y	No longer required. The new EMPR to be submitted with the new mining license conversion application will request that the borrowpit be extended further into the hill and the access road to the quarry moved to an alternative alignment.
5	All scrap will be removed from the site for recycling.	N	Y	A fairly large quantity of scrap metal still remains in the designated scrap storage area. This is to be sold or recycled (<i>pers. comm. D. Wynn of Independent Crushers</i>).
6	All domestic waste will be collected in rubbish bins which are scavenger proof. The bins will be emptied on a regular basis and the waste disposed of at a registered solid waste landfill site.	Y	N	
7	No burning of waste, tyres etc will be allowed on site.	Y	N	
8	The exposed benches of the quarry will face towards the north, and therefore away from the N2, thereby reducing the harsh visual impact of rock faces.	N	Y	Presently benched slopes face toward the south as well. The new development plan (to be submitted with new order mining license application will include mining of the section of the hill from the existing quarry towards the crusher and site office area. This is likely to be quite noticeable from the N2 road. This impact must be discussed in the new EMPR.
9	Final rehabilitation of benches as described in Section 2.2 above will allow for the revegetation of mining areas, thereby reducing the visual impact significantly.	N/A	N/A	Rehabilitation not progressed this far to date.
10	All white boulders which are used to designate the mining areas will be removed on closure.	N/A	N/A	Rehabilitation not progressed this far to date.
P: Regional Socio-economic structure				
1	Employment, both casual and permanent, will be provided where possible to local residents of Exolweni Village.	Y	N	Almost all labour is sourced from neighbouring settlements.
2	Harvesting of black wattle for firewood will be allowed provided that it is supervised and the spread of seeds is prevented (ie should not harvest when seeds are set).	Y	N	The mine representative indicated that temporary labour is employed to remove alien species but the level of supervision is not specified.
3	The company will continue to provide building stone and sabunga to the local construction industry.	Y	N	The company will also (according to the new social and labour plan) support the development of additional small scale businesses in the surrounding local

NO	ACTIVITY	COMP Y/N	ACTION Y/N	COMMENT
				communities in future.
4	Water availability within the Exolweni Village will not be affected as the mine will abstract during the night in order to fill the 80 000l storage tank on site.	Y	N	Water accessed from the municipal system and therefore does not impact on the village.

