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#### **ADDRESSED TO:**

Directors of Monte Cristo Commercial Park

13 April 2021

### **RESPONSE TO I&AP ZOOM MEETING HELD ON 2021-04-10 WITH REGARDS TO MINING AND REHABILITATION PROGRESS FOR THE MINING RIGHT APPLICATION FS 30/5/1/2/2/10048MR ON THE FARM GOOSEBAY, FREE STATE PROVINCE.**

## **1 INTRODUCTION**

An Interested and Affected Party (I&AP) meeting was held on 2021-04-10 via zoom with registered I&AP members to present the mining right application FS 30/5/1/2/2/10048MR on the farm Goosebay (Portion 3 of Woodlands 407, Remaining Extent of Portion 1 of Woodlands 407 & Remaining Extent of Woodlands 407). The meeting also gave I&APs the opportunity to respond and raise their concerns.

This report provides a follow-up statement that specifically addresses the progression of mining and concurrent rehabilitation in order to clarify potential confusion and address the concerns raised by I&APs.

## **2 ANTICIPATED PROJECTED MINING PROGRESS**

Figure 1 & Figure 2 illustrates the sand and aggregate mining areas and the anticipated projected progress over 30 years. A total area of 363.5 ha will be demarcated for phased open pit mining including associated infrastructure. On a year-on-year basis, average mining areas will be:

- Sand: 6.8ha;
- Aggregate: 4.6ha (Note these are averages based on the total area divided by 30 years)

In some instances, the anticipated yearly mining area is larger than the average due to the limited volume of resource in that area. However, only 5ha sand and 4ha aggregate (9ha in total) will be actively mined at any given time at the various locations as indicated in Figure 3 and Figure 4.

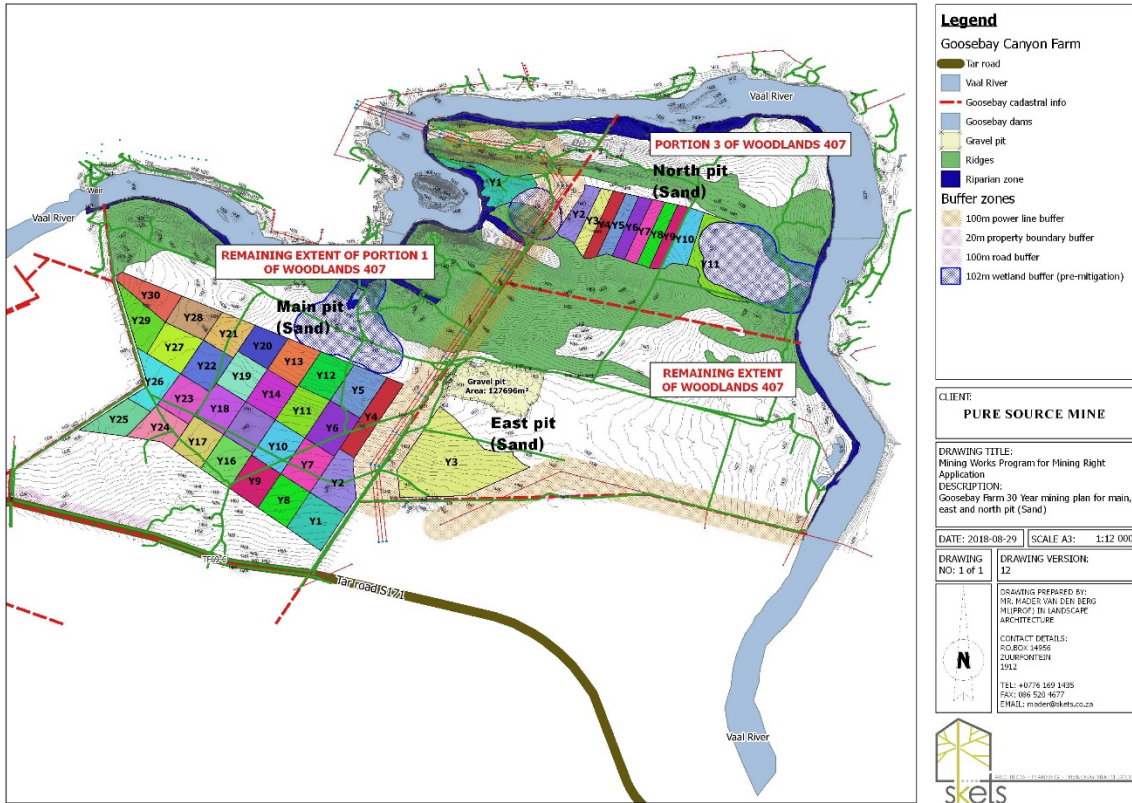


Figure 1: Silica sand - 30 year mine plan

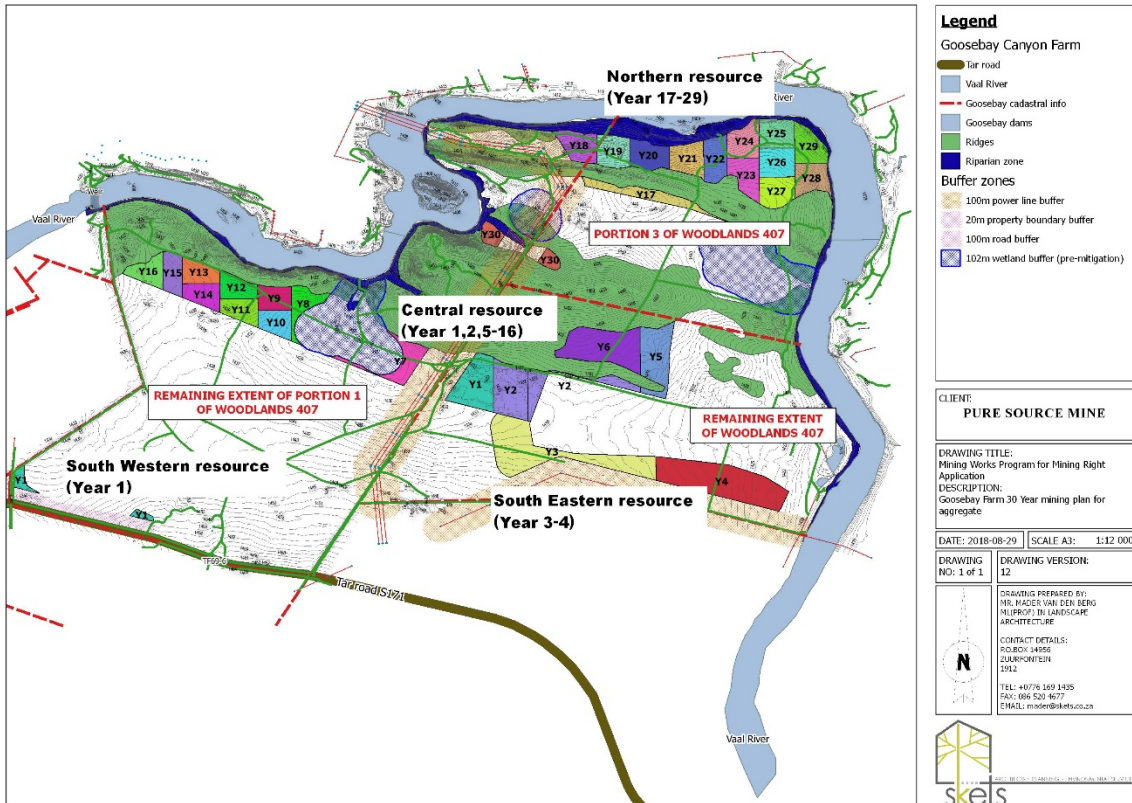


Figure 2: Aggregate - 30 year mine plan

### 3 CONCURRENT REHABILITATION AND PROGRESSIVE CLOSURE

The suggested roll-over mining procedure is a form of concurrent rehabilitation to minimise the mining company's environmental liability. This is aligned with the closure objectives and aim at reducing impacts surrounding air quality, visual impacts and surface water quality by minimising surface disturbances.

Historically, closure was seen as an intervention left to the end of the life-of-mine. The concept of progressive closure walks hand-in-hand with concurrent rehabilitation which is rather part of the operational phase and developed in parallel with the mining activities. Figure 3 and Figure 4 proposes the anticipated progress of the mine from year 1 to 30. It also illustrates how concurrent rehabilitation follows mining. Take note that mining will commence in three different locations in the first year. Sand mining will occur in the main- and north pit, whereas aggregates will commence in the central region. As mining progresses, the active mining areas will shift accordingly.



Figure 3: Yearly sand and aggregate mining from year 1 to 10

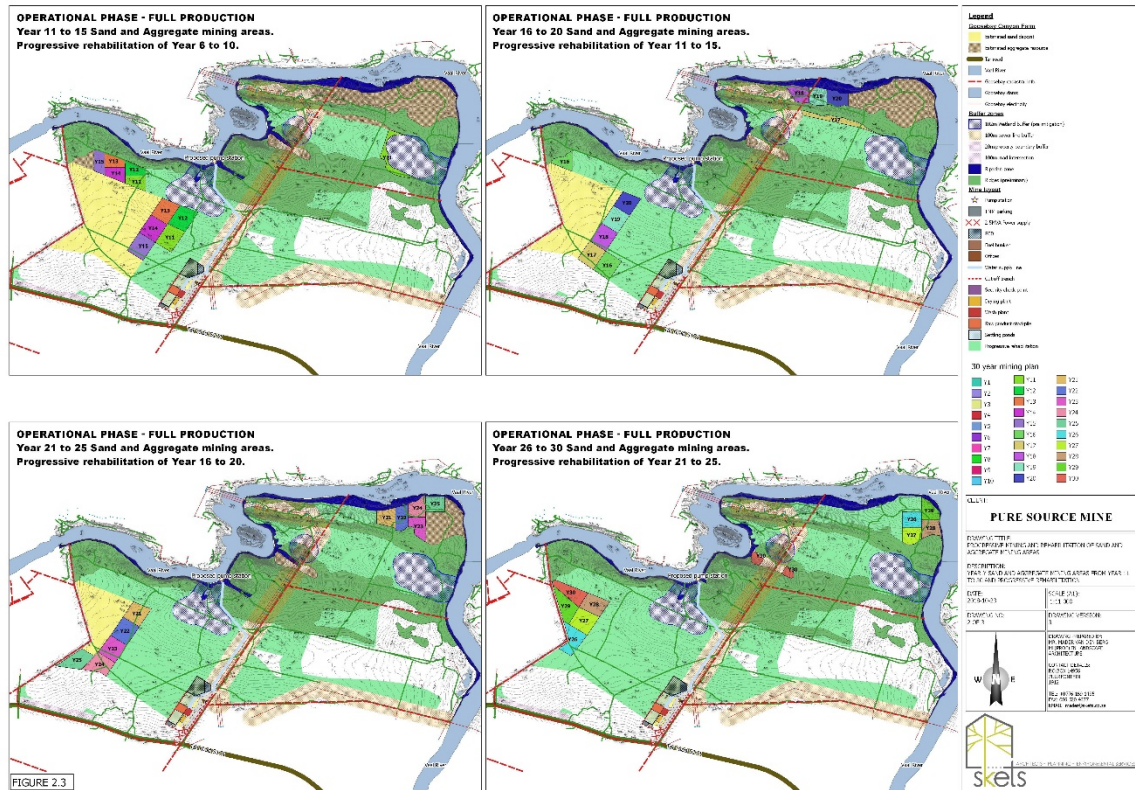


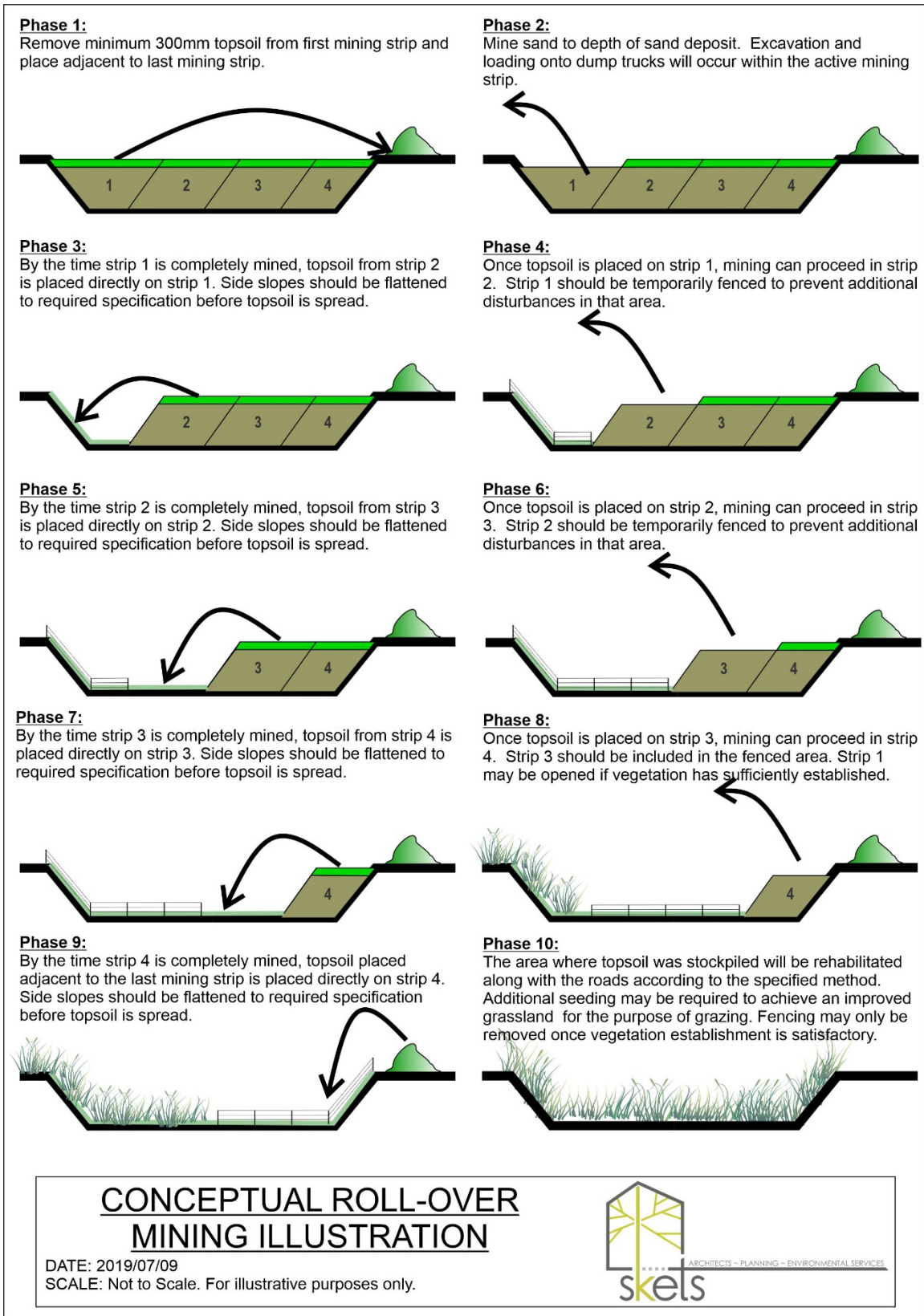
Figure 4: Yearly sand and aggregate mining from year 11 to 30

## 4 MINING AND REHABILITATION SEQUENCING

Roll-over mining is further illustrated in more detail in Figure 5 & Figure 6. It illustrates the typical handling of topsoil and integrated rehabilitation during the operational phase. The block-by-block approach is clearly discussed, considering that not more than 5ha for sand and 4ha for aggregate will be actively mined at any given time.

After a block has been mined, it will go through a couple of preparation steps before topsoil is placed on it. Firstly, it will be shaped by profiling the slopes of the pit to a gradient between 18-27° or less. Oversized or undersized material that has been screened out, could be used to profile the pit. Secondly, the necessary cover design should be implemented depending on the end land use of the mine site. In most cases, the site will return back to a vegetation cover, but as part of the post closure strategy, certain areas may be allocated for dams or water courses. The third step involves the spreading of a growth medium or topsoil. This shall be protected, maintained, and managed until 60% of the area is covered with vegetation.

A monitoring and maintenance program will commence until a stable and safe landform with sufficient vegetation establishment has been reached.



**CONCEPTUAL ROLL-OVER  
MINING ILLUSTRATION**

DATE: 2019/07/09  
SCALE: Not to Scale. For illustrative purposes only.



Figure 5: Roll over mining (1)

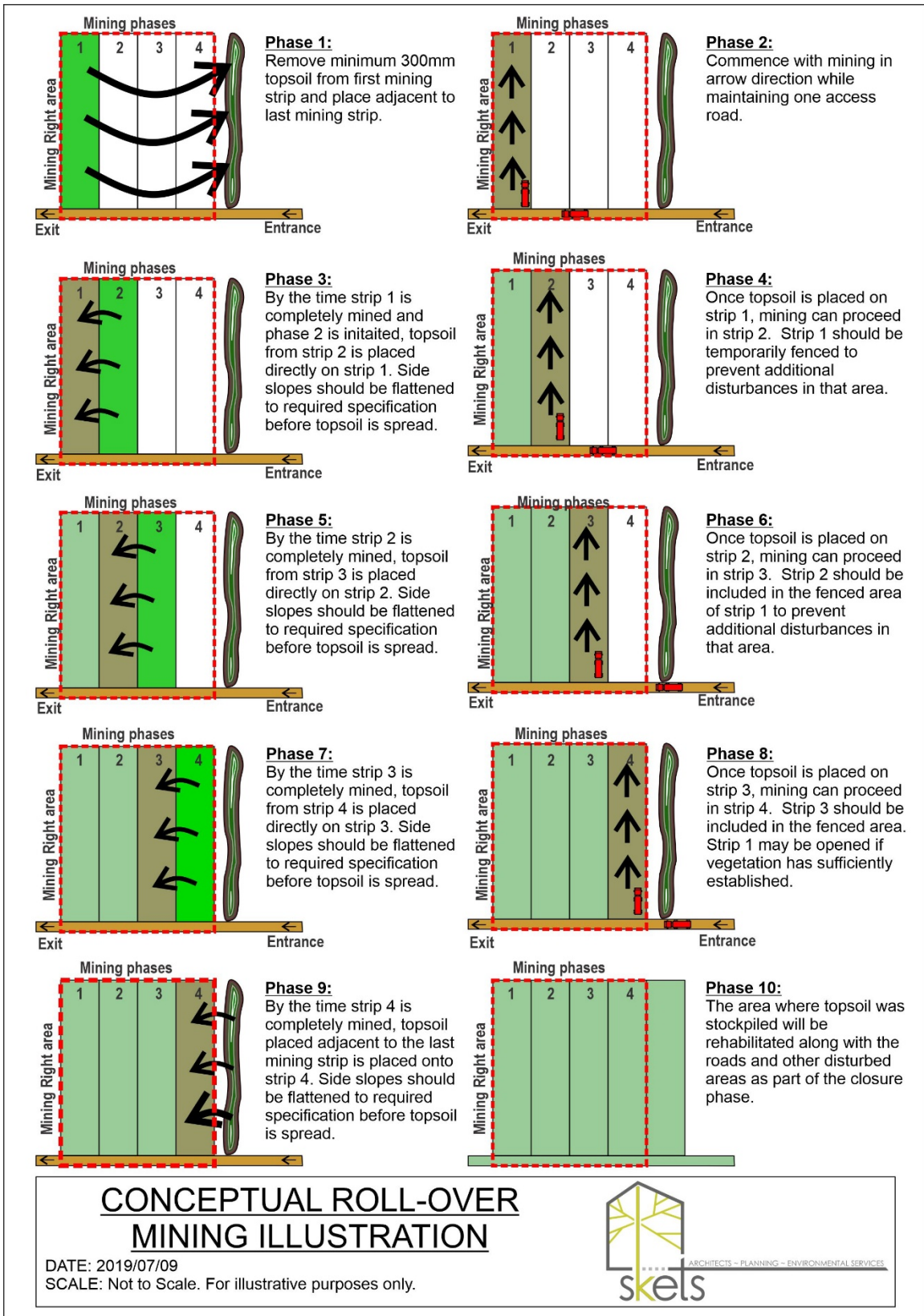


Figure 6: Roll over mining (2)

## 5 ESTABLISHING VEGETATION

Experience gained during the rehabilitation of the mining permits, has added significant knowledge to the strategy of establishing vegetation after mining. One such knowledge aspect is the roll-over mining concept that makes maximum use of the topsoil as a cover with the necessary qualities to support a rapid vegetation establishment. As a minimum objective, a vegetation coverage and diversity, similar to the natural vegetation cover of the pre-mining environment, should be achieved. An improved grazing quality is however recommended, but can only be achieved if soil conditions are improved, i.e., nutrient cycles, water absorption capacity, etc, and with the introduction of high quality grazing grass species.

A soil test should be done to confirm the nutrient content as well as pH balance, etc., in order to establish the required amelioration by means of inorganic/organic supplements prior to seeding. From the rehabilitation of the mining permits, it was often noticed that agricultural lime had to be added as well as organic material. This is where grass cuttings from the pre-mining areas or hay bales, are extremely valuable. By spreading the grass cuttings over the newly laid topsoil, it benefits in the following ways:

- It covers the exposed topsoil and limits wind erosion and rain splash erosion of the surface particles, especially on the slopes;
- It retains moisture levels by limiting evaporation, thereby supporting vegetation growth;
- It adds organic matter to the top layer that will decompose over time, releasing nutrients and stimulating micro-organism activity in the soil layer; and
- It provides a protective mulch that regulates temperature fluctuations in the surface which also protects the seeds and enhances germination.

If the grass cuttings are not enough to cover the entire area, it can be laid in windrows, perpendicular to the prevailing wind direction to act as windbreaks. This will minimise wind erosion and provide a stable soil environment for vegetation establishment. Alternatively, bio-engineering options for example geo-fabrics could be installed.

It was noted during the rehabilitation of the mining permits that some game congregated in the newly planted areas to graze the new growth. This caused severe damage to the young seedlings and prolonged vegetation establishment. It is recommended that the areas under rehabilitation are enclosed with a temporary fence to keep out the larger game from the area until sufficient vegetation establishment is achieved. It should remain closed for at least two growing seasons or when the vegetation coverage is 60% or more.

Adaptive Management & Monitoring will commence in which accumulated knowledge and best practice research influences the following phases of the mine. Regular data sourcing feeds back into the active rehabilitation efforts and mining operations.