Rehabilitation Plan

Erf No. 657; Ouwerf Farm

Citrusdal

DMR Reference: (WC) 30/5/1/2/2/10158MP

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Rehabilitation Plan

1. Background

This plan of the land to which the application relates, is to meet the requirements for the application of mining permit on Ouwerf Farm, Citrusdal. The proposed mine site is situated approximately 7km south-east of Citrusdal within the Clanwilliam Magisterial District, on portion of the farm Ouwerf: Erf no. 657. Refer to figure 1 and 2 and Table 1.

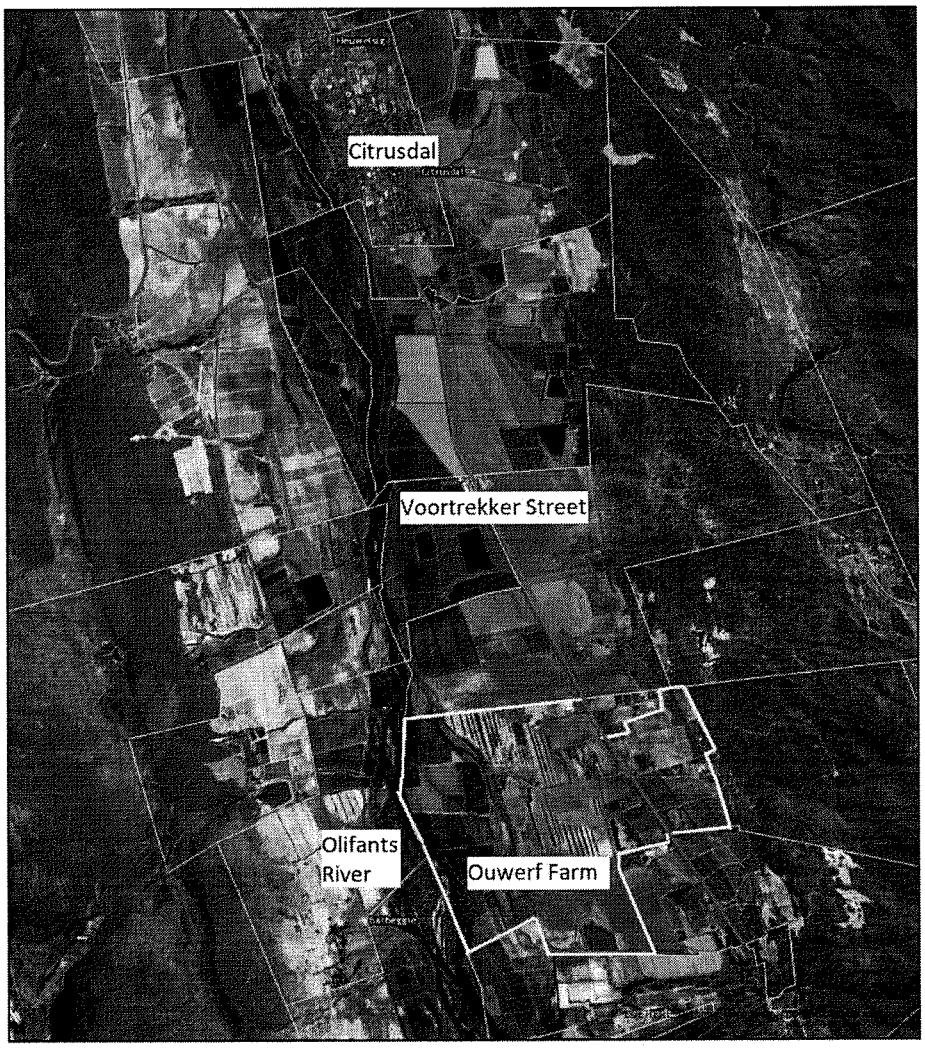
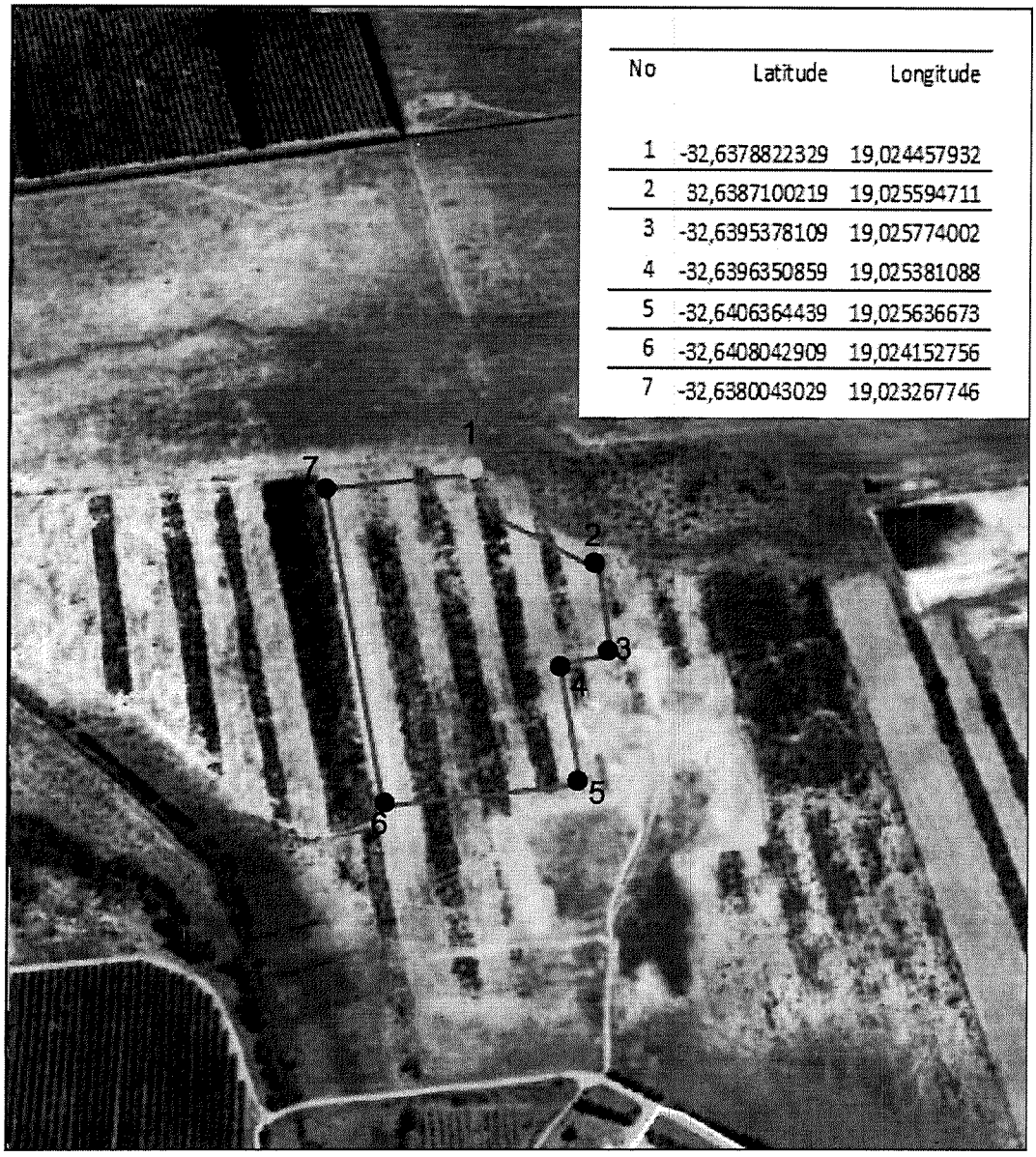


Figure 1 (Map showing Location of Erf No. 657)

Proposed Sand Mine Location



Legend

- Parent Farms
- Erf
- Proposed Sand Mine Borders
- North Point

0 0.125 0.25 0.5 km

Scale: 1:10 000

Western Cape Government
Agriculture

Figure 2 (Mine Plan of Proposed Sand Mine)

The location, the name and number of the land to which the application relates

Table 1 Summary of Ouwerf Sand Mine Location

Farm name	Ouwerf Boerderye CC
Farm SG Code	C02000000000065700000
Area (ha)	509.96
Magisterial District	Clanwilliam
Distance and Direction to Nearest Town	7km South-East from the town of Citrusdal
GPS-coordinates	32° 38' 29.26" S, 19° 1' 35.2585" E

1.1 Rehabilitation principles, methods and management actions

1.1.1 Soil Preparation

The aim of soil preparation is to establish a growth medium in which there is a balance between mineral soil, organic material and organically bound nutrients that will promote plant growth. Contemporary research has shown that the process of establishing a mature soil can take up to a hundred years to accomplish (Bradshaw, 1983). At the mine, an attempt will be made to replicate this process in a substantially shorter time. It can therefore be deduced that it will not be possible to establish a fully mature soil on rehabilitated areas of the mine owing to time constraints. However, every effort will be made to establish the beginning phases of the pedological process and to provide a growth medium (soil) that will support vegetation which will mature naturally as time progresses.

Topsoil of a minimum depth of 300mm should be collected and stored on site until rehabilitation is undertaken. Topsoil must be stored for the minimum duration possible (not more than three months), and should be covered with shade-cloth to prevent germination and loss to wind erosion. Topsoil should be taken only from the sections that are going to be actively mined in the next three month period, and the remainder of the development area should be left untouched until that section is to be mined.

Rehabilitation should ideally take place in a phased approach, whenever a particular area is mined out. This will ensure that rehabilitation time is maximised, and that topsoil storage time is minimised.

Constraints:

• Not enough topsoil is kept to be used as growth medium.

• A change in climate, dry spells and flooding.

Mining will be preceded with the stripping and removal of both topsoil and overburden for later use in rehabilitation. The topsoil and overburden will be stored separately. It needs to be noted that before topsoil is stripped that all alien vegetation in the affected area be removed or sprayed first.

Management Actions:

- Remove all alien vegetation before topsoil stripping

- Remove topsoil from area to be mined and store separate from overburden.

- Remove all overburden and store.

• The areas where eradication has not yet taken place should be monitored on an annual basis to assess the increase in population densities of the targeted species in order to reassess the project priorities.

2. Decommissioning Phase and Closure

2.1 Closure Objectives

• Establish a self-sustaining vegetation cover on all disturbed land.

• Develop a maintenance-free surface water management system that will prevent erosion on sloped areas.

• Rip and seed all internal roads and access routes that will not be needed for future use.

• Leave a site suitable for agriculture.

2.2 Closure plan

2.2.1 Infrastructure

• No mine buildings on site.

• Identify all surface structures, plant, machinery and accompanying foundation blocks for demolishment or removal.

• All usable scrap will be sold to off-set costs of rehabilitation.

• All non-saleable scrap will be disposed of at an appropriate waste disposal facility.

• All concreted areas will be broken up and removed to landfill.(N/a)

• All disturbed areas will be ripped, supplied with surface water management system where needed and seeded.

2.2.2 Mine residue deposits

• All residue deposits will be landscaped, supplied with surface water management systems and re-vegetated.

2.2.3 Sealing of underground workings and rehabilitation of dangerous excavations

• A safety fence will be erected around the open pit if required .(N/a)

2.2.4 Rehabilitation of ramps, haul roads and final voids

• All unnecessary roads that will not be utilised will be ripped and where necessary seeded. However the existing access road will be hardened and used by landowner for access.

• Where roads are located on slopes, surface water management structures will be placed in appropriate locations in order to prevent erosion.

2.3 Residential impact after closure

• The re-vegetated areas will be incorporated into the farm operation.

2.4 Maintenance

• All re-vegetated areas will be monitored for a period of two years after seeding.

• All surface water management structures will be monitored for a period of two years after construction.

3. Financial Provision

The calculations are based on a worst case scenario which assumes that the plant for any reason is abandoned and that the Government of the day is left with the responsibility for the rehabilitation of the property.

In assessing the costs it is assumed that: -

(a) No masonry buildings or foundations exist on site.

(b) A 20 ton excavator will be used for primary levelling.

(c) A front end loader will be used for final levels.

(d) Topsoil will be replaced

(e) Site will be seeded

(f) Alien vegetation inside mine area will be cleared.

The norm for simple shallow open cast mines is R 12 000 per ha. A total of 5 ha is applied for mine establishment. If this amount is acceptable to the Department of Mineral Development a Bank Guarantee for R 60 000, 00 will be lodged with the Department.