

**IMERYS REFRACTORY MINERALS SOUTH AFRICA (PTY) LTD –
CYFERFONTEIN CLAY QUARRY**

**Annual Rehabilitation Plan and Annual Financial Provision
Based on Appendix 3 (Minimum Content of An Annual Rehabilitation Plan) of
the Regulations Pertaining to the Financial Provision for Prospecting,
Exploration, Mining or Production Operations, 2015 9(GN 1147) (as amended)
i.t.o. the National Environmental Management Act No 107 of 1998 (as
amended).**

DMR ref: LP30/5/1/1/2/12071 PR

**Location: Portions 61, 62 and the remaining portion 3 of the farm Cyferfontein
457 KR, Modimolle Local Municipality, Limpopo**

August 2018



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MINIMUM CONTENT OF AN ANNUAL REHABILITATION PLAN

The annual rehabilitation plan will form a component of the environmental management programme to be submitted in terms of section 24N of the Act and the Environmental Impact Assessment Regulations, 2014 and will be subject to the same requirements of the environmental management programme with regards opportunities for stakeholder review and comment as well as auditing.

Objective of the annual rehabilitation plan

The objective of the annual rehabilitation plan is to:

- a. review concurrent rehabilitation and remediation activities already implemented;
- b. establish rehabilitation and remediation goals and outcomes for the forthcoming 12 months, which contribute to the gradual achievement of the post-mining land use, closure vision and objectives identified in the holder's final rehabilitation, decommissioning and mine closure plan;
- c. establish a plan, schedule and budget for rehabilitation for the forthcoming 12 months;
- d. identify and address shortcomings experienced in the preceding 12 months of rehabilitation;
and
- e. Evaluate and update the cost of rehabilitation for the 12-month period and for closure, for purposes of supplementing the financial provision guarantee or another financial provision instrument.



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ADDENDUMS

Addendum 1: Environmental Risk Assessment Report

Addendum 2: Environmental Management Programme Performance Assessment Report, 2018

ABBREVIATIONS

DWS	Department of Water and Sanitation
EAP	Environmental assessment practitioner
EMP	Environmental Management Programme
EMP PA	Environmental Management Programme Performance Assessment
GN 1147	Regulations Pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production, GN 1147 of 2015 i.t.o. the National Environmental Management Act No 107 of 1998 (as amended)
LoM	Life of Mine
MHSA	Mine Health and Safety Act, 1996 (Act No. 29 of 1996)
MPRDA	Minerals and Petroleum Resources Development Act (Act 28 of 2002 as amended)
MPRDR	Minerals and Petroleum Resources Development Regulations, GN 527 of 2004 (as amended) i.t.o. the Minerals and Petroleum Resources Development Act No 28 of 2002
MWP	Mine works programme
NEMA	National Environmental Management Act No 107 of 1998 (as amended)



DISCLAIMER

The views expressed in this annual rehabilitation report are based on the information supplied to BECS Environmental by Imerys Refractory Minerals. BECS has ensured all due care in reviewing the supplied information. BECS has compared key supplied data with predictable values, the accuracy of the results and conclusions from the review are entirely reliant on the accuracy and completeness of the supplied data. BECS does not accept responsibility for any errors or omissions in the supplied information and does not accept any consequential liability arising from commercial decisions or actions resulting from them. Opinions presented in this report apply to the site conditions and features as they existed at the time of BECS investigations, and those reasonably probable. These opinions do not necessarily apply to conditions and features that may arise after the date of this report, about which BECS had no prior knowledge nor had the opportunity to evaluate.

EXECUTIVE SUMMARY

Imerys Refractory Minerals South Africa (Pty) Ltd (previously Ecca Holdings (Pty) Ltd) has applied for a prospecting right on portions 61, 62 and the remaining of portion 3 of the farm Cyferfontein 457 KR, Modimolle Local Municipality, Limpopo, for the prospecting of ceramic clay.

The prospecting application was accepted on 23 July 2014. The prospecting right was executed in 2014. A wetland delineation was conducted as part of the study. Prospecting will not take place within 500m of the wetland boundary. Ceramic clay is an inert substance and does not contain any known soluble substance that is harmful to the natural environment under normal conditions. Prospecting has only yet taken place on portions 61 and 62 of the farm Cyferfontein, therefore this Annual Rehabilitation Plan will only focus on these areas.

Information regarding the background to the mine was taken from various documents including the approved Environmental Management Programme (EMP) and the EMP PA. A site visit was held on 19 March 2018 to gather any additional information.

Requirements of the annual rehabilitation plan

The annual rehabilitation plan will be relevant for a period of 1 year, after which the plan will be updated by the holder of the right to reflect progress relating to rehabilitation and remediation activities in the preceding 12 months and to establish a plan, schedule and budget for the forthcoming 12 months. The annual rehabilitation plan must contain information that defines concurrent rehabilitation and remediation activities for the forthcoming 12 months and how these relate to the operations' closure vision, as detailed in the final rehabilitation, decommissioning and mine closure plan, must indicate what closure objectives and criteria are being achieved through the implementation of the plan, must be measurable and auditable and must include the following contents as seen in Table 1.



Table 1: Contents of an annual rehabilitation plan in terms of Appendix 4 of the Regulations Pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production, (GN 1147) of 2015 i.t.o. the National Environmental Management Act No 107 of 1998 (as amended) (NEMA)

Appendix nr	Description	Section in this report
3(a)(i)	details of the person or persons that prepared the plan	1.2
3(a)(ii)	details of the professional registrations and experience of the person or persons;	1.2
3(a)(iii)	details of the timeframes of implementation of the current, and review of the previous rehabilitation activities;	4.6
3(b)	the pertinent environmental and project context relating directly to the planned annual rehabilitation and remediation activity;	3
3(c)	results of monitoring of risks identified in the final rehabilitation, decommissioning and mine closure plan with a view to informing rehabilitation and remediation activities;	4.2
3(d)	an identification of shortcomings experienced in the preceding 12 months;	4.3
3(e)	details of the planned annual rehabilitation and remediation activities or measures for the forthcoming 12 months, including those which will address the shortcomings contemplated in (d) above or which were identified from monitoring in the preceding 12 months, and including	4.4
3(e)(i)	if no areas are available for annual rehabilitation and remediation concurrent with mining, an indication to that effect and motivation why no annual rehabilitation or remediation can be undertaken;	4.4.1
3(e)(ii)	where areas are available for annual rehabilitation and remediation concurrent with mining, annual rehabilitation and remediation activities related to previous disturbance or expected planned impacts and disturbance, as per the mine works programme (MWP), in the period under consideration, which should be tabulated and must indicate, but not necessarily be limited to	4.4.2
3(e)(ii)(aa)	nature or type of activity and associated infrastructure;	4.4.2.1
3(e)(ii)(bb)	planned remaining life of the activity under consideration;	4.4.2.1
3(e)(ii)(cc)	area already disturbed or planned to be disturbed in the period of review;	4.4.2.1
3(e)(ii)(dd)	percentage of the already disturbed or planned to be disturbed area available for concurrent rehabilitation and remediation activities;	4.4.2.1
3(e)(ii)(ee)	percentage of the already disturbed or planned to be disturbed area available as per (dd) and on which concurrent rehabilitation and remediation can be undertaken;	4.4.2.1
3(e)(ii)(ff)	notes to indicate why total available or planned to be available area differs from area already disturbed or planned to be disturbed;	4.4.2.1
3(e)(ii)(gg)	notes to indicate why concurrent rehabilitation will not be undertaken on the full available or planned to be available area;	4.4.2.1
3(e)(ii)(hh)	details of rehabilitation activity planned on this area for the period of review;	4.4.2.1
3(e)(ii)(ii)	the pertinent closure objectives and performance targets that will be addressed in the forthcoming year, which objectives and targets are aligned to the final rehabilitation, decommissioning and mine closure plan;	4.4.2.1

Appendix nr	Description	Section in this report
3(e)(ii)(jj)	description of the relevant closure design criteria adopted in the annual rehabilitation and remediation activities and the expected final land use once all rehabilitation and remediation activities are complete for the activity or aspect; and	4.4.2.1
3e(iii)	a site plan indicating at least the total area disturbed, area available for rehabilitation and remediation and the area to be rehabilitated or remediated per aspect or activity;	4.4.3
3(f)	a review of the previous year's annual rehabilitation and remediation activities, indicating a comparison between activities planned in the previous year's annual rehabilitation and remediation plan and actual rehabilitation and remediation implemented, which should be tabulated and as a minimum contain:	4.5
3(f)(aa)	area planned to be rehabilitated and remediated during the plan under review;	4.5
3(f)(bb)	actual area rehabilitation or remediated; and	4.5
3(f)(cc)	if the variance between planned and actual exceeds 15%, motivation indicating reasons for the inability to rehabilitate or remediate the full area; and	4.5
3(g)	costing, including;	6
3(g)(i)	an explanation of the closure cost and methodology,	6.1
3(g)(ii)	auditable calculations of costs per activity or infrastructure,	6.2
3(g)(iii)	cost assumptions; and	6.4
3(g)(iv)	monitoring and maintenance costs likely to be incurred both during the period of the annual rehabilitation plan and those that will extend past the period of the final rehabilitation, decommissioning and mine closure plan, on condition that the monitoring and maintenance costs included in previous annual rehabilitation plans must be accumulated into subsequent versions of the annual rehabilitation plan until such time as the monitoring and maintenance obligation is discharged	6.3

Attached as **Addendum 1** is the Environmental Risk Assessment Report in line with the requirements of the Minerals and Petroleum Resources Development Act (Act 28 of 2002 as amended) (MPRDA) as stipulated in regulation 60 of the Minerals and Petroleum Resources Development Regulations, GN 527 of 2004 (as amended) i.t.o. the Minerals and Petroleum Resources Development Act No 28 of 2002 (MPRDR); regulations 6(c), 11(1)(c) & 12(3) & Appendix 5 of the Regulations Pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production, GN 1147 of 2015 i.t.o. NEMA.

Attached as **Addendum 2** to this report is the EMP Performance Assessment, 2018, as stipulated in regulation 55(9) of the MPRDR. See Section 6 for the Annual Updated Financial Provision report is as stipulated in regulation 6 of the Regulations Pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production, GN 1147 of 2015 i.t.o. NEMA.

No transfer of environmental liabilities and responsibilities will take place, Imerys will rehabilitate the mine.



The total financial provision costs for the year 2018 is **R49 400.00**. Please note, this is only for activities taking place up to the compilation of this report.



SECTION 1: INTRODUCTION

1.1 Details of applicant

Refer to Table 2 below for a description of the applicant.

Table 2: Description of the applicant

Project applicant	Imerys Refractory Minerals South Africa (Pty) Ltd – Cyferfontein Prospecting
Contact person	Hendrik Jones
Designation	Operational Director
Telephone number	+27 12 643 5940
E-mail address	Hendrik.Jones@imerys.com

1.2 Details of Environmental assessment practitioner

This section includes (a) details of the person or persons that prepared the plan and (b) details of the professional registrations and experience of the person or persons.

Refer to Table 3 below for a description of the environmental assessment practitioner (EAP).

Table 3: Description of the environmental assessment practitioner

Name of company	BECS Environmental
Postal address	PO Box 72960, Lynnwood Ridge, 0040
Telephone number	012 361 9970
Cell phone number	072 191 6074
Facsimile number	012 361 0645
E-mail address	salome@becsenv.co.za
Name of responsible EAP	Salome Beeslaar
Expertise of EAP	B.Sc Environmental Science (UP), B.Sc Honours Geography (UP), M.Sc Geography (UP), Professional Scientist (Environmental Science) , member of the International Associated of Impact Assessments South Africa.
Name of second responsible EAP	Deshree Pillay
Expertise of EAP	B. Sc Environmental Science (UP), B. Sc Honours Geography & Environmental Science (UP)

I, Salome Beeslaar (8310190032081), hereby declare that I have no conflict of interest related to the work of this report. Specially, I declare that I have no business, personal, or financial interests in the property and/or mining right being assessed in this report and that I have no personal or financial connections to the relevant property owners or mine. I declare that the opinions expressed in this report are my own and a true reflection of my professional expertise and that there are no circumstances that may compromise my objectivity in performing such work.





Salome Beeslaar

MSc – Geography, SACNASP (400385/14), IAIAA (5853)

August 2018

1.3 Background on locality

The proposed prospecting site is situated on portions 61 and 62 and the remainder of portion 3 of the farm Cyferfontein 457 KR, in Ward 8 of the Modimolle Local Municipality (MLM), in the Waterberg District Municipality (WDM) of the Limpopo Province. The site is located on a dirt road, linking Bela-Bela and Boekenhout, which connects to the R33. The site is approximately 20km from Modimolle, 17km east of Modimolle and 32km west of Boekenhout.

The site is situated within the A61C Quaternary Drainage Region in the Limpopo Primary Catchment; however, the southernmost tip of the site falls within the B31E Quaternary Drainage Region in the Olifants Primary Catchment. The drainage density over the area is 0.2km of drainage path per square kilometre of land area. The approximate co-ordinates of the mine are 24°49'44.14"S; 28°26'29.29"E. Refer to Figure 1 for a locality map.

1.4 Description of the property

There is currently no mining infrastructure on the site. The farmer on portion 61 and 62 of the farm Cyferfontein currently plants crops on a portion of the property. Cattle and game also occur on this property. Prospecting activities only involved geological field mapping, literature survey, drilling and sampling, sample analysis, reserve and resource modelling. Existing farm roads are used.

1.5 Land ownership of adjacent land and servitudes

Nicolene De Beer and Frik J. van Zyl are the owners of portion 3 the farm Cyferfontein 457 KR. Ikey Jooste and A Jooste are the owners of portions 61, 62 of the farm Cyferfontein 457 KR. There are no existing servitudes.

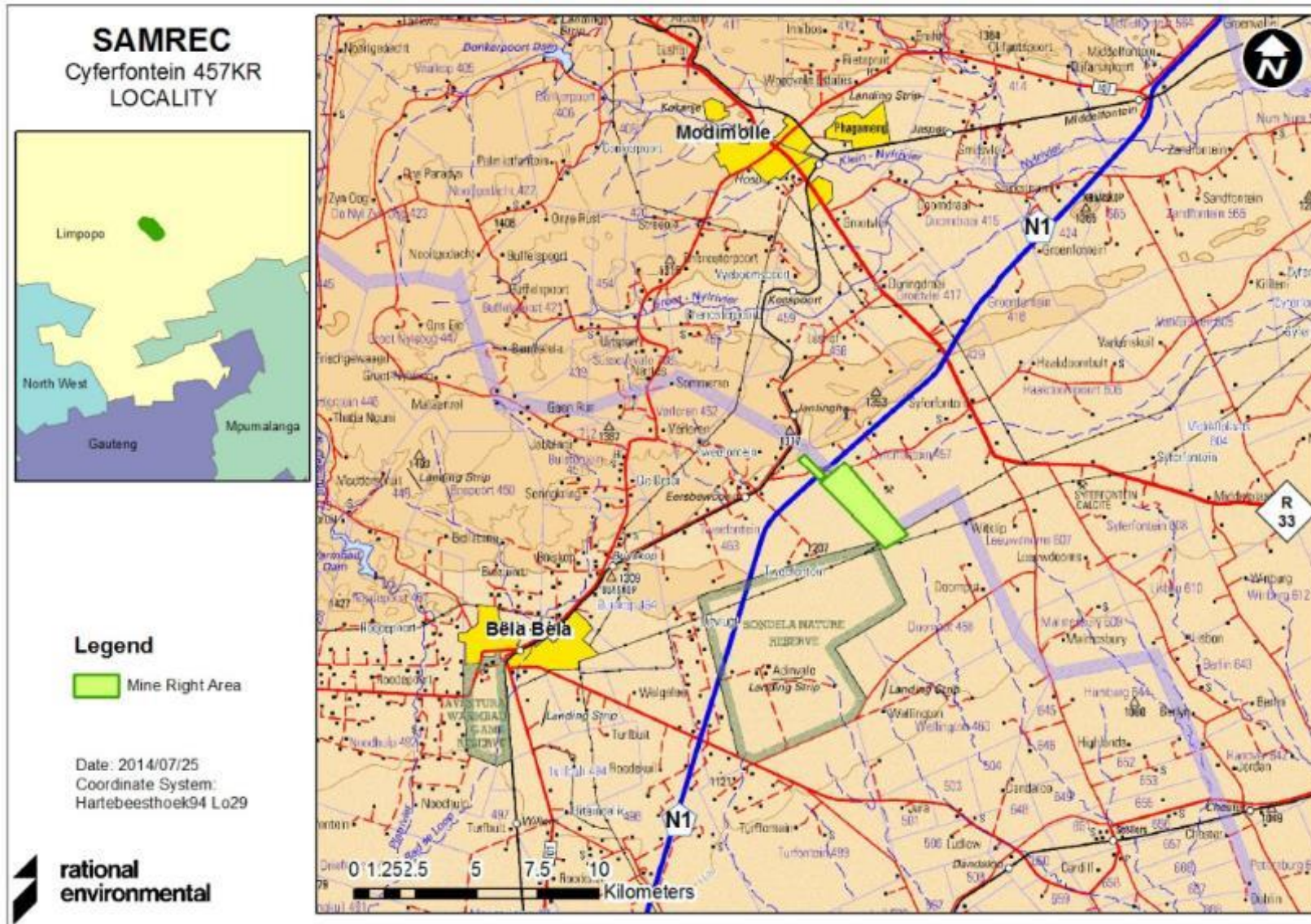


Figure 1: Locality Map of Cyferfontein



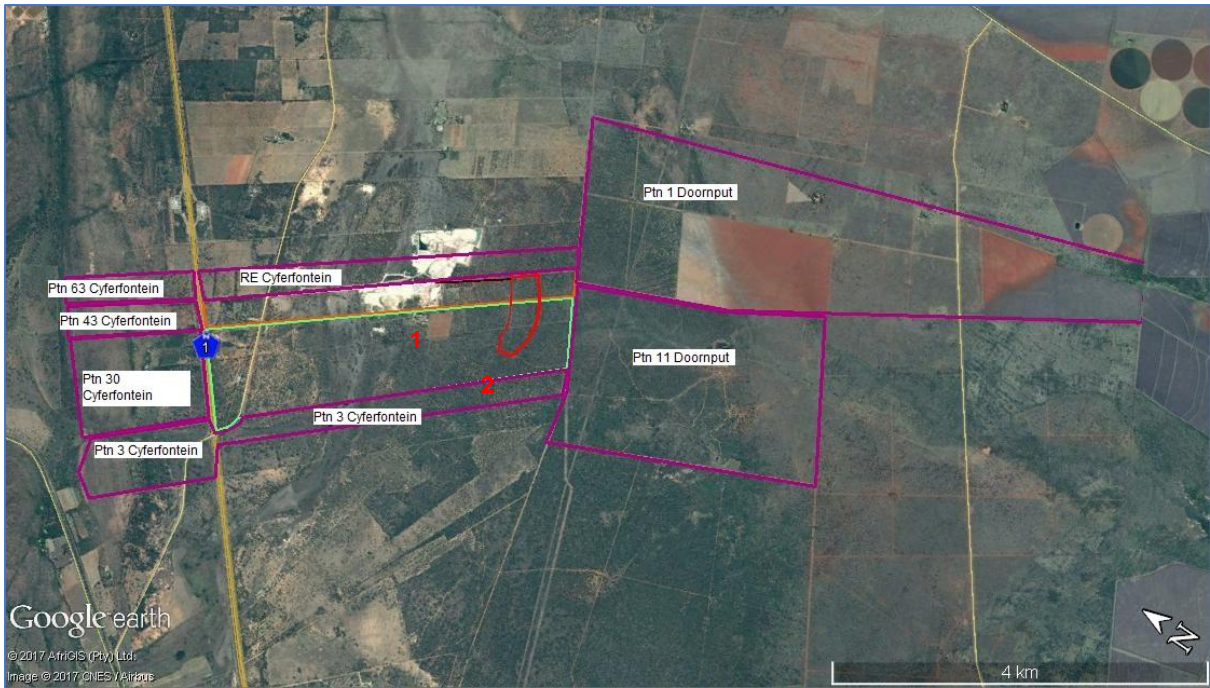


Figure 2: Google earth image of all landowners

Table 4: Landowners

Number	Physical address	Adjacent Landowner	Institution	Land Use
1.	Ptn 61 and 62 of Cyferfontein 457 KR	Ikey Jooste and A Jooste	Morula Tona Boerdery CC	Prospecting
2.	Ptn 3 of Cyferfontein 457 KR	Nicolene De Beer and Frik J. van Zyl	Private	Vacant land

SECTION 2: LEGISLATION AND GUIDELINES APPLICABLE

Table 5: Legislation and interpretation of these requirements for the closure design principles

Legislation	Requirements	Interpretation of these requirements for the closure design principles
Regulation 56 of MPRDR	<p>In accordance with applicable legislative requirements for mine closure, the holder of a mining right must ensure that -</p> <ul style="list-style-type: none"> a) the closure of a mining operation incorporates a process which must start at the commencement of the operation and continue throughout the life of the operation; b) risks pertaining to environmental impacts must be quantified and managed proactively, which includes the gathering of relevant information throughout the life of a mining operation; c) the safety and health requirements in terms of the Mine Health and Safety Act, 1996 (Act No. 29 of 1996) (MHSA) are complied with; d) residual and possible latent environmental impacts are identified and quantified; e) the land is rehabilitated, as far as is practicable, to its natural state, or to a predetermined and agreed standard or land use which conforms with the concept of sustainable development; and f) mining operations are closed efficiently and cost effectively. 	<p>The prospecting EMP of 2014 describes the environment on site and the potential impacts during prospecting. Waste material of any description shall be removed entirely from the area and disposed of at a recognised landfill facility. It will not be permitted to be buried or burned on the site of the mine states that final sloping of any disturbed areas shall take place. Photographs of the site, before and during the prospecting operation and after rehabilitation, shall be taken at selected fixed points and kept on record for the information of the DMR. Concurrent rehabilitation includes the backfilling of drill holes and the replacement of topsoil. All trenches shall also be concurrently backfilled, sloped and topsoil replaced. Due to the prospecting only including the drilling of boreholes, the final rehabilitation will not include much EMP commitments.</p> <p>It should be noted that the mine is currently waiting for execution of a section 102 to incorporate portions 61 and 62 of Cyferfontein into the mining right.</p>
Regulation 61 of MPRDR	<p>Closure objectives form part of the draft environmental management programme and must -</p> <ul style="list-style-type: none"> a) identify the key objectives for mine closure to guide the project design, development and management of environmental impacts; 	<p>The pertinent closure objectives and performance targets that will be addressed in the forthcoming year, which objectives and targets are aligned to the final rehabilitation, decommissioning and mine closure plan can be found in section 4.4.2.1 in this report.</p>



Legislation	Requirements	Interpretation of these requirements for the closure design principles
	b) provide broad future land use objective(s) for the site; and c) provide proposed closure costs.	
Regulations 6(a) of GN 1147	An applicant must determine the financial provision through a detailed itemisation of all activities and costs, calculated based on the actual costs of implementation of the measures required for annual rehabilitation, as reflected in an annual rehabilitation plan	The financial provision is included in Section 6 of this Annual Rehabilitation Plan which includes the financial provision methodology, auditable calculations of financial provision per activity or infrastructure financial provision estimation and assumption on the financial provision.
Regulations 11(1)(a) of GN 1147	The holder of a right or permit must ensure that a review is undertaken of the requirements for annual rehabilitation, as reflected in an annual rehabilitation plan	Rehabilitation commitments will be assessed and reviewed upon approval of the annual rehabilitation plan.
Regulations 11(2) of GN 1147	The holder of a right or permit must, on completion of the actions contemplated in subregulation (1), ensure that the adequacy of the financial provision is assessed and any adjustments that need to be made to the financial provision are identified.	The adjustments to the financial provision are included in section 6 of this Annual Rehabilitation Plan. Note the transitional period for these Regulations.
Regulations 12(1) of GN 1147	The annual rehabilitation plan must contain all information set out in Appendix 3 to these Regulations	This Annual Rehabilitation Plan is based on the requirements of the MPRDA, as well as Appendix 3 of GN 1147 pertaining to the minimum content of a rehabilitation plan.



SECTION 3: THE PERTINENT ENVIRONMENTAL AND PROJECT CONTEXT RELATING DIRECTLY TO THE PLANNED ANNUAL REHABILITATION AND REMEDIATION ACTIVITY

3.1 Environmental context

3.1.1 Geology

Information for this section was obtained from 'Cyferfontein Quarry Portion 7 of the Farm Cyferfontein, Environmental Management Programme' (Shangoni Management Services, 2011), and 'Prospecting Work Programme for Ceramic Clay with respect to the farm Cyferfontein 457 KR, portions 61, 62 and re portion 3' (Ecca Holdings, 2014).

3.1.1.1 General geology

The refractory and ceramic clay being prospected occurs in the Swaerhoek Formation of the Nylstroom Subgroup within the Waterberg Group; which is situated in an area with a geological association of the Karoo Supergroup.

3.1.1.1.1 Karoo Supergroup

The Karoo Supergroup is the largest stratigraphic unit in Southern Africa. Its strata, mostly shales and sandstones record an almost continuous sequence of marine glacial to terrestrial deposition from the Late Carboniferous to the Early Jurassic, a period of about a hundred million years. These accumulated in a retroarc foreland basin called the "main Karoo" Basin. This basin was formed by the subduction and orogenesis along the boundary of Gondwana (the past African continent) and the Panthalassan Sea (paleo-Pacific). Its sediments attain a maximum cumulative thickness of 12km, with the overlying basaltic lavas (the Drakensberg Group) at least 1.4km thick.

3.1.1.1.2 Waterberg Group

The Palaeoproterozoic Waterberg Group consists chiefly of a succession of coarse siliciclastic rocks (sandstone with minor conglomerate layers) which shows two upward-fining sequences. The main depository evolved as a continental, fault-bounded basin in the northern part of the Kaapvaal Craton. The Main basin is bounded in the south by the Thabazimbi-Murchison fault zone and in the north by the southern part of the Melinda fault zone. Mudstones are rare. The rocks are permeated with iron oxide and mostly stained red. They are resistant to chemical weathering and produces mountainous topography.

The Swaerhoek and lower Sterk River Formations at the base of the sequence are interpreted to have been deposited as fan deltas and were possibly reworked in a littoral palaeo-environment.



3.1.1.1.3 Swaerhoek Formation

The Swaerhoek Formation consists of sandstone, greywacke, fire clay, ceramic clay, shale and glomerate and is underlined by volcanic rocks sandstone and quartzite of the Schrikkloof Formation of the Rooiberg Group in this vicinity

3.1.1.2 Site specific geology

According to the MWP, the refractory fire clay and ceramic clay generally occur at a depth of between 2m and 15m with an average thickness of 2-7m, and a strike spreading in a north-west to south-east direction. This will further be investigated if prospecting activities take place. Even though the Waterberg Group has only rare mudstones, the Lithology of the mine is mudstone. The general rock type is sedimentary with a dominant geological description of mostly Tonalite with some Rhyolite to the most southern point of the boundary.

No known dykes, sills or faults are present on or extend beyond the site

3.1.2 Climate

Information for this section was obtained from 'Cyferfontein Quarry Portion 7 of the Farm Cyferfontein, Environmental Management Programme' (Shangoni Management Services, 2011).

The climate is typical of the Transvaal Bushveld with hot summers and cold winters. Most rainfall occurs in the summer in the form of thunderstorms, during the months November to March, and some extreme weather conditions occur. Rainfall is moderate.

3.1.2.1 Precipitation

The rainfall is summarised in Table 6 and is due almost exclusively to showers or thunderstorms and occurs mainly in summer from November to March with the maximum falls occurring in December 121.7mm on average. The mine receives 51.3mm per month on average. The maximum recorded rainfall during any 24-hour period at Bela-Bela was 102mm (1976/02/11). Maximum monthly intensity is summarised in Table 6.

3.1.2.2 Temperature

The mean monthly maximum and minimum temperatures are summarised in Table 6. The highest monthly maximum of 32°C occurs during January, while the lowest monthly minimum of 4°C occurs during July.

3.1.2.3 Evaporation

The mean monthly evaporation is 194.4 mm per area with the highest occurring in October (252.2mm per area) and the lowest in June (111.2mm per area). Annual evaporation for the area is 2,001mm to 2,200mm per area. The area is also described as being semi-arid.



3.1.2.4 Wind

The mean wind direction is north-easterly. Winds are light except for short periods during thunderstorms.

3.1.2.5 Extreme weather

Hail and drought are the only forms of extreme weather that occur in the area. The frequency for hail is 12.5 days per year, while severe drought occurs 12% of all years. Frost begins early in May. Floods also occurs in the area (2000 and 2014 most recently).

Table 6: Average annual weather for the area

	RAINFALL			EVAPORATION
	Average	Rain days	Maximum	mm
	Mm	+1mm	24-hours	
January	113.1	11.2	77.0	229.0
February	81.3	8.5	102.0	186.6
March	73.8	8.8	56.0	186.0
April	36.5	5.8	41.5	143.8
May	7.0	2.0	21.5	143.2
June	5.3	1.4	30.0	111.2
July	2.2	0.8	13.5	126.5
August	5.3	1.1	26.0	175.9
September	14.4	2.3	41.3	229.3
October	56.3	7.3	84.0	252.1
November	99.0	10.6	88.0	231.0
December	121.7	12.7	81.7	247.9
Total	615.9	72.2		
Mean	51.3	4.8		194.4

3.1.3 Topography

Information for this section was obtained from ‘Cyferfontein Quarry Portion 7 of the Farm Cyferfontein, Environmental Management Programme’ (Shangoni Management Services, 2011), AGIS, 2007 (accessed on 2014), and Google Earth (2014).

3.1.3.1 General topography

The general area is situated on a broad terrain type described as the lower lying Bushveld Basin. This Region lies in an east-west orientation, on an area approximately 350km by 150km. It is surrounded by hills, some of which are, the Magaliesberg and Witwatersrand in the south, the Waterberg in the north and the Mpumalanga escarpment in the east. The areas is described from a terrain morphological division or unit as plain, which is further described as having a terrain morphological description of moderately undulating plains.



3.1.3.2 Site specific topography

According to GoogleEarth (2014), the terrain type is plains with open low hills or ridges, with a low to very gentle slope gradient. The slope gradually declines towards the wetland area. The slope increases considerably on the northern side of the N1. This site falls outside the prospecting area.

3.1.4 Soil

This section was obtained from AGIS (2007). It is noted that the soil changes rapidly and is different on different sections of the farms, therefore different plant life and also different carrying capacity. According to AGIS (2007), the general soil type is PT1 – red, yellow and / or greyish soils with low to medium base status. Water-holding capacity is moderate of 61mm–80mm. Loamy sands are mostly dominant. The depth of the soil varies from 0.5m and 3m, the average being 0.8m. The soil layer consists of a weakly defined topsoil layer comprised decayed plant material and a res apedal B horizon, a highly-eroded soil type covered with crystalline and amorphous iron and aluminium oxides and hydroxides. The site has low predicted soil loss due to erosion. Soil has a moderate rainfall erosivity of 300mm–400mm, and with medium sediment delivery potential. Soil is also low to moderately susceptible to water erosion due to the morphology the site, with poor or impeded drainage. Clay classes are very low of less than 15%. The site has no saline or sodic soils. The soils are mesotrophic – moderately leached and highly susceptible to acidification.

3.1.5 Pre-mining land capability, land use and existing infrastructure

The area has a medium to high arable and a high grazing capacity. The area has a grazing capacity of approximately 5ha per livestock unit. According to the landowner, portion 61 and 62 of the farm Cyferfontein has a grazing capacity of 3ha per livestock unit. These two portions have approximately 100 cattle and 200 game on the area. Portion 3 of the farm Cyferfontein also farms with livestock and game

3.1.6 Natural vegetation

Information for this section was obtained from 'Cyferfontein Quarry Portion 7 of the Farm Cyferfontein, Environmental Management Programme' (Shangoni Management Services, 2011), AGIS, 2007 (accessed on 2014), and 'The vegetation of South Africa, Lesotho and Swaziland' (Mucina & Rutherford, 2006).

3.1.6.1 Vegetation units

The northern part of the site falls within the vegetation unit, referred to as the Central Sandy Bushveld. This unit is described as low undulating areas, sometimes between mountains and sandy plains supporting tall deciduous *Terminalia sericea* and *Burkea africana* trees and low, broadleaved *Combretum*. The south-eastern part of the proposed site falls within the vegetation unit referred to as Springbokvlakte Thornveld. This unit is described as open to dense, low thorn savannah dominated by *Acacia* species or shrubby grassland with a very low shrub layer.



3.1.7 Animal life

Information for this section was obtained from 'Cyferfontein Quarry Portion 7 of the Farm Cyferfontein, Environmental Management Programme' (Shangoni Management Services, 2011).

Jackal, duiker, impala and kudu have occasionally been observed near the mine on portion 7 of the farm Cyferfontein. A wide variety of bird life, including Spur-winged Goose and Grey Loerie, were spotted on the mining area on portion 7 of the farm Cyferfontein.

According to the landowner of portion 3, there is currently has giraffe, zebra etc, as well as abundant birdlife due to the wetland. Some of the rare bird species spotted on the farm includes cape vultures and "Renoster" birds. Portions 61 and 62 are also used for game farming.

3.1.8 Surface water

Information for this section was obtained from 'Cyferfontein Quarry Portion 7 of the Farm Cyferfontein, Environmental Management Programme' (Shangoni Management Services, 2011), AGIS, 2007 (accessed on 2014), and SANBIGIS (2014).

3.1.8.1 General surface water

The site is situated within the A61C Quaternary Drainage Region in the Limpopo Primary Catchment; however, the southernmost tip of the site falls within the B31E Quaternary Drainage Region in the Olifants Primary Catchment. The drainage density over the area is 0.2km of drainage path per square kilometre of land area.

3.1.8.2 Wetlands and fountains

There is an unchannelled valley-bottom wetland on the site. Refer to Figure 3 for this wetland. This map was taken from SNABIGIS. The mine has committed to do a wetland delineation. This section will be updated once this delineation is done.



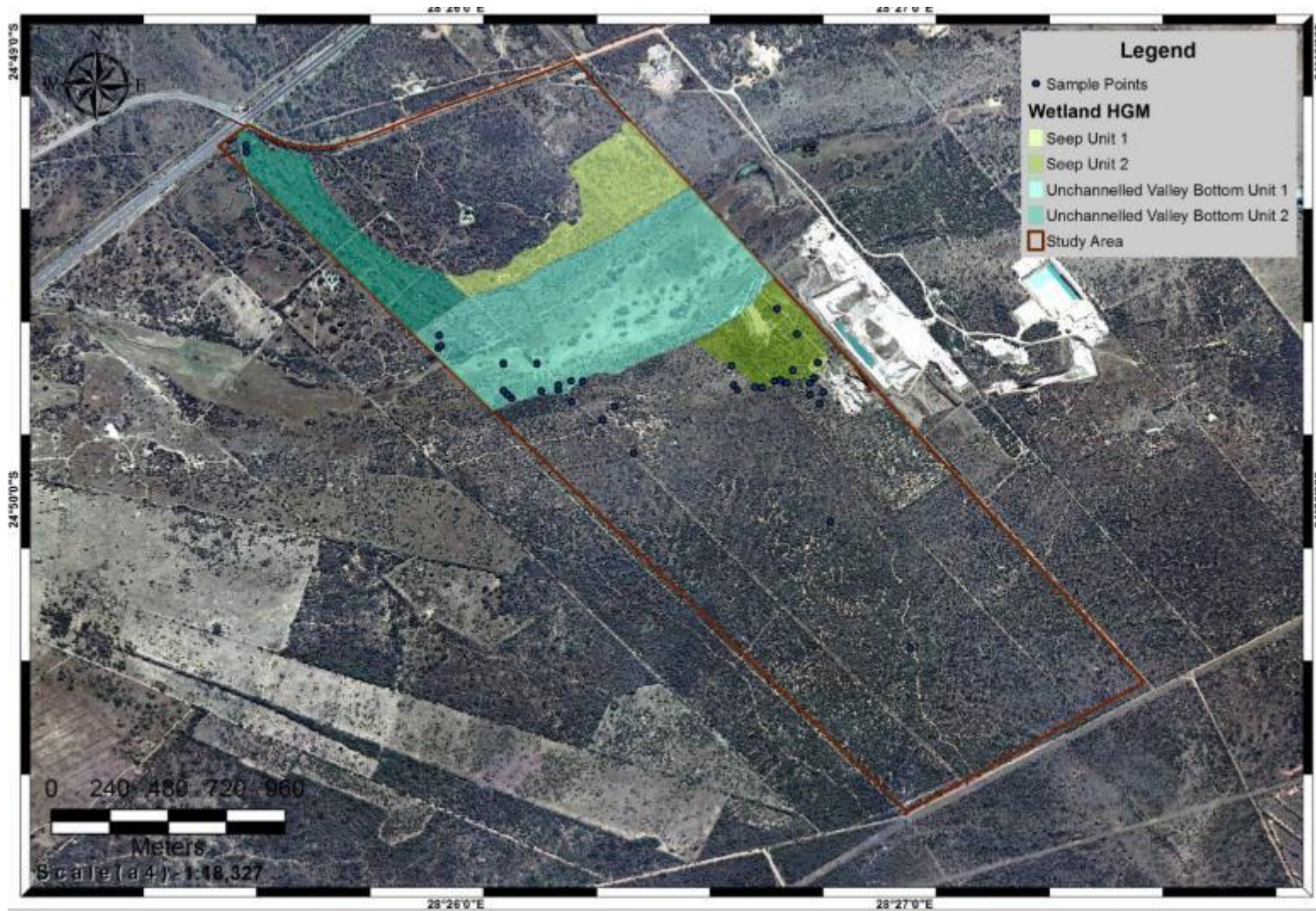


Figure 3: Wetland delineation map

According to Wagner, the northern portion of portion is a hill, with a stream and fountains that flow downhill for kilometres. Please note, no prospecting will take place on the northern parts.

3.1.8.3 Surface water

The quarry falls within the Limpopo Water Management Area. The wetland delineation will also include reference to the Nylvlei Wetlands.

3.1.9 Groundwater

Information for this section was extracted from the Groundwater Impact Assessment (Groundwater Complete, 2017).

The groundwater level depths in the two boreholes, Jooste-BH01 and Mine-BH01, were 40mbs and 14mbs respectively. The water level in Jooste-BH01 is significantly deeper than in Mine-BH01. The most probable reason for the deeper level is that the borehole is in use by the owner. Extraction is therefore in all probability the cause.

According to the South African National Standards for drinking water (SANS 241:2015), groundwater is considered to be of good to marginal quality, with only two parameters exceeding permissible limits for drinking water. Elevated sodium concentrations were observed in Mine-BH01, but not in the pit water. It is therefore concluded that the elevated sodium concentration does not originate from the mining activities. The **fluoride** concentration in the pit exceeded the maximum permissible limits for drinking water. No fluoride is used or generated in the mining process and it is concluded that the elevated fluoride originates from the soil and aquifer host rock in natural ion exchange reactions. Similar elevated fluoride concentrations in groundwater are observed in the Waterberg Group rocks as well as in the Rooiberg felsite formations. Apart from the elevated fluoride content, the water in the pit is of good quality (conforms to drinking water guideline values). This clearly shows that the mined material itself is inert to the extent that it does not cause contamination of the underlying groundwater regime. Two types of groundwater are observed: dominated by **sodium+potassium** cations and **bicarbonate alkalinity** anions or dominated by **sodium+potassium** cations and **chloride+nitrate** anions. Groundwater quality data for the area is limited and additional monitoring boreholes are proposed for the existing and proposed mining areas.

3.1.10 Air quality

Apart from the adjacent mines and agricultural activities there is no identifiable source of air pollution within the vicinity of the mine.

3.1.11 Environmental noise

Noise impacts will include already existing mining, local traffic, and the N1.



3.1.12 Visual aspects

The overburden dumps, topsoil dumps and the quarries of all three neighbouring mines are visible from the N1. Settlements in the area are widely dispersed and the population is sparsely distributed.

3.1.13 Cultural and heritage resources

According to landowner, there is a “Boer War” fort as well as a family grave on portion 3 of the farm Cyferfontein. It is unknown whether there are any other cultural or heritage resources on the site.

3.1.14 Sensitive features

Specific environmental features on the site applied for which may require protection, remediation, management or avoidance are referred to as sensitive landscapes. The unchannelled valley-bottom wetland is considered as a sensitive feature which may require protection, remediation, management or avoidance. The mine has committed to do a wetland delineation. This section will be updated once this delineation is done.

3.1.15 Regional socio-economic aspects

Information for this section was obtained from ‘Cyferfontein Quarry Portion 7 of the Farm Cyferfontein, Environmental Management Programme’ (Shangoni Management Services, 2011).

3.1.15.1 General regional socio-economic structure

Limpopo Province has a culturally mixed population. The total population size is approximately 5.27million people. This is 12% of the total South Africa Population. Of this, 52.6% is younger than 20 years. Of this people between 5 years and 24 years old, 22% attended no educational institution, 74% attend school and only 1% attends tertiary education institutions. The economy is characterised by small and concentrated production and large consumer base with limited means in terms of income. The largest sectors are agriculture and mining.

3.1.15.2 Local economic structure

MLM is situated in the WDM within the Limpopo Province. The municipality share borders with Bela-Bela to the South, Mookgopong to the North, Thabazimbi to the South-West, Lephalale to the West and Mogalakwena to the North-West. MLM is at the centre of the WDM and is therefore the administrative capital of the District Municipality.

3.1.15.2.1 Local industry

A large portion of MLM population is employed in the community services (includes government services) sector (29.6%). The economic sectors that also contribute largely to employment are agriculture (23.8%), trade (16%) and manufacturing (10.8%). The majority (53.4%) of the municipality is employed in either community services or agriculture sectors. The sectors showing an increase in employment from 1996 to 2007 are community services, finance, trade and construction. Sectors which had a decline in employment contribution for the same period are transport, electricity, manufacturing,

mining and agriculture. It is of concern that the agriculture sectors employment contribution is declining, since this sector contributes largely to the employment opportunities in MLM.

The region is well known for its tourist facilities, most notably the Bela-Bela hot springs. Many of the economic activities are geared for the tourist visiting the area or vehicle traffic using the main north-south traffic artery (the N1). Apart from tourism, the development nodes of the region act as service centres to the farmers within the spheres of influence. Limited governmental services are also provided within these nodes. All other economic activities in the area are agriculturally orientated.

3.1.15.2.2 Local household income

In MLM, 33.6% of the population receive no income. The majority of the households (88.8%) are living below the poverty level, which means that a large percentage of the households are earning less than R38 400 per year. The large no income households group, within the municipality, can be a reflection of the relatively young population. Only 0.2% of the municipality's households can be classified within the high income group, which means that only a limited number of households earn more than R1,228,801 per year. A small percentage (10.8%) of households is classified in the middle income group.

3.1.15.2.3 Local employment

MLM has an unemployment rate of 22% and employment rate of 60%. The percentage of population which fall within the not economically active is 18%. It should be noted that this part of the population also form part of the PEA population. These persons are either not able to work or choose not to work.

3.1.15.2.4 Local rate of economic growth

Economic growth has direct implications to formal employment levels. While informal or second economy employment, also plays an important role in providing access to household income. There are 202 registered informal traders or hawkers. Most of them are selling vegetables, sunglasses, belts, hats, earrings and watches. Data is currently unavailable for the contribution of this sector or economy. The municipality is currently in the process of formalising this sector to a level where the formal and informal business can co-exist and support each other.

3.1.15.3 Local social structure

3.1.15.3.1 Population

The mine is situated in the rural area between the developmental nodes Bela-Bela (west of the mine) and Modimolle (east of the mine). The nearby biggest population concentration is in Modimolle. The population density in the immediate vicinity of the mine is very low (on par with national figures for agricultural rural communities). The population growth rate in the region is rather low although the birth rate is high (most people migrate to larger developmental nodes if they are not employed locally or dependant on a person who is locally employed).



3.1.15.3.2 Total households and size

Housing in the area is provided on farms. The population is concentrated around farmsteads except in Bela-Bela and Modimolle, which are urban areas. Mine workers are housed in temporary housing on the mining site.

3.1.15.3.3 Education

The majority of the population completed some form of schooling; however 11% of the population has completed no schooling at all. Only 33% of MLM's population has obtained some primary schooling and a limited portion of the municipality's population have matriculated (12%). This has led to a large unskilled population.

3.1.15.4 Service infrastructure

MLM is a water service authority municipality and has approximately 17,000 registered households. The registered household's water usage can be summarised as follows:

- 23% of households have piped water inside their dwelling houses;
- 28% have piped water inside the yard;
- 13% have access to water on a community stand; and
- 3% access water from boreholes.

Donkerpoort water purification plant supply water to a part of Modimolle Town & Phagameng, as a result, Magalies Water was appointed as service provider to supply the required amount. The capacity of Modimolle reservoirs are currently at 2MI, although there is a need for another 24 MI storage to ensure sufficient water supply for current and future development.

Modimolle sewer treatment plant is currently running at its full capacity of 3MI/day. MLM is expanding the existing sewer treatment plan by another 3MI/day although it has been indicated that the new expansions will still not address the full demand that currently exists. The existing sewer capacities constrain future development in the municipality.

MLM is an electricity service provider. MLM currently has a total of 23MVA capacity to supply the community. Out of the 23MVA, Modimolle town has 20MVA of which its optimum utilisation is 18MVA.

The municipality is characterised by townships, farms and informal settlements. The unemployment rate increased rapidly during the focus shift due to the increase in evicted workers. The increasing housing backlog in the municipality is a huge challenge. The current housing backlog is approximately 3,000 units. Most of the housing structures are mainly built out of brick and cement and informal settlements are 100% tin houses.

MLM is strategically located adjacent to the N1, that links Gauteng Province and Limpopo Province and the R33 is a freight corridor that connects the east and the west. It is used mostly by trucks passing



through Modimolle to Lephalale LM. The existing municipality road network comprises of a total of 186.4m. It is of particular importance that the bulk of the surfaced road network is still in a relatively good to fair condition ($\pm 85\%$) and subsequently, with appropriate and timeous intervention, the integrity of the majority of the existing surface road network can be preserved.

The railway line connecting the south to the north is currently active and are being utilised for both passengers and freight goods.

The MLM has two licensed landfill sites, one in Vaalwater and the other in Modimolle/Phahameng, with a total capacity of 320,000,m³.

3.1.15.5 Site specific

All three portions are used for game farming and livestock farming, contributing a large part of the income for these landowners. Corps are also planted on portions 61 and 62, also contributing to the income of this farm. Other sources of income in the area are tourism, renting of houses, and a planned chalets and camping area on portion 3 of Cyferfontein. Farming on Portion 3 is done in a unit with adjacent farm portions.

3.3 Zone of influence

Since prospecting is the only activity that has taken place, the zone of influence will be the soil which is not impacted greatly as yet. If mining does occur, the zone of influence will expand as the impact on the environment grows.

3.3.1 Geology

Prospecting activities according to the Cyferfontein Mine EMP PA BECS Services (Pty) Ltd, 2018 is approximately 30-40m deep. This will disturb the geology of the constructed boreholes only. The material from the topsoil to 10m deep consists mainly of silt, fine sand and gravel. Therefore, the zone of influence is restricted to the project area.

3.3.2 Climate

There is no zone of influence for the climatology of the region

3.3.3 Topography

There is no zone of influence for the topography of the region

3.3.4 Soil

The potential impacts on soil relate to the disturbance of topsoil and potential contamination of the soil with hydrocarbons and other chemicals spilled by equipment associated with prospecting activities such as vehicular movement to and from site. Soil erosion may occur if adequate soil management structures to control storm water run-off are not implemented and maintained. Surface water runoff can cause



erosion on the area disturbed. The impact on the soil will however be localised and will not transverse the boundaries of the mine. Siltation of surrounding areas can occur when soil is washed across the boundaries of the mine e.g. Cyferfontein. This may continue after closure if the mitigation measures are not well implemented and maintained.

3.3.5 Pre-mining capability, land use and existing infrastructure

The mine has only performed prospecting activities which include the digging of boreholes, therefore, there are no noteworthy activities yet taking place to impact the zone of influence.

3.3.6 Vegetation

The zone of influence on flora can extend outside the current prospecting area in the event that invader plants migrate from the mine to the surrounding farms. This can be minimised through an invader plant control programme. Once prospecting has ceased the influence will be prevented by continuing with the implementation of such a plan.

3.3.7 Animal life

The zone of influence with regards to fauna will be limited to the prospecting area and will not extend outside the prospecting area for the duration of the prospecting. If exotic species are introduced, the zone of influence can extend further than the mine. This can be managed through a land management plan and the biodiversity action plan.

3.3.8 Surface water

No haul roads were constructed over the wetland. Therefore, there is no zone of influence.

3.3.9 Groundwater

The mine has only undertaken prospecting, therefore, there are no noteworthy activities yet taking place to impact the zone of influence.

3.3.10 Air quality

The only potential sources of post closure air pollution would be dust generated from the disturbed areas. The effective rehabilitation will minimise this impact.

3.3.11 Environmental noise

The only noteworthy activities that generated noise during prospecting was drilling which restricts the zone of influence to the region of prospecting as well as the surrounding landowners, communities and could frighten animal life.

3.3.12 Visual aspects

There is no zone of influence for visual impacts as the holes in ground are barely visible when walking in the field.



3.3.13 Cultural and heritage resources

The zone of influence on heritage resources is limited to the direct surrounding where the heritage resource occurs. There were no resources of cultural or heritage importance which results in no zone of influence being impacted.

3.3.14 Sensitive features

The mine has only prospected there are thus no noteworthy activities yet taking place.

3.3.15 Regional socio-economic aspects

The zone of influence from a social economic point of view can extend further than the boundaries of the mine.

SECTION 4: ANNUAL REHABILITATION PLAN

4.1 Proposed final post-mining land use

The wetland area and buffer zone shall not be disturbed. End land use (also pre-prospecting state) of the wetland and buffer area shall be unaltered throughout the prospecting period. The current land use on portion 61 and 62 is grazing of wildlife and planting of crops. This will also be the end land use. It should be noted that the mine is currently waiting for execution of a section 102 to incorporate portions 61 and 62 of Cyferfontein into the mining right.

4.2 Results of monitoring of risks identified in the annual rehabilitation, decommissioning and mine closure plan with a view to informing rehabilitation and remediation activities

Refer to the Environmental Risk Assessment Report, attached as **Addendum 1** for a complete description of all the risks identified in the final rehabilitation, decommissioning and mine closure plan with a view to informing rehabilitation and remediation activities.

4.3 An identification of shortcomings experienced in the preceding 12 months

This is the first annual rehabilitation plan to be submitted. The rehabilitation can only commence once the EMP has been approved. Prospecting right commenced on the prospecting right was executed in 2014



4.4 Details of the planned annual rehabilitation and remediation activities or measures for the forthcoming 12 months, including those which will address the shortcomings contemplated in Section 4.2 above or which were identified from monitoring in the preceding 12 months

4.4.1 If no areas are available for annual rehabilitation and remediation concurrent with mining

All areas that were drilled are available for rehabilitation and remediation; however, these areas have been concurrently backfilled already. There is currently no area on portion 61 or 62 of Cyferfontein to be backfilled. All rehabilitation on these areas will focus on final monitoring.

4.4.2 If areas are available for annual rehabilitation and remediation concurrent with mining

No prospecting has yet taken place on portion 3 of Cyferfontein; however, these area will be prospected in the future and therefore rehabilitation and remediation for future prospecting will be included in this section.

Closure (cessation of prospecting activities) incorporates a process which starts at the commencement of mining and continue throughout the Life of Mine (LoM). It is executed within the framework of sustainable development. Risk to elements of the environment is quantified and managed pro-actively. This includes the gathering of relevant information throughout the LoM. The main closure objective is to rehabilitate the area to the pre-prospecting land use, which will also be the end land use. To achieve this, the following additional closure objectives are necessary:

- To ensure the area is sloped to the pre-prospecting topography;
- To ensure replacement of all topsoil in a good condition;
- To ensure revegetation of disturbed areas;
- To prevent the propagation of alien vegetation;
- To remove (if any) pollutants from the site;
- To prevent any erosion and subsequent sedimentation from taking place;
- To ensure that the area is maintenance free; and
- To prevent the loss of property value, therefore adequate rehabilitation

The rehabilitation activities taken from the EMP are as follow:

Concurrent rehabilitation

- All drill holes shall be concurrently be backfilled and topsoil replaced.
- All trenches shall be concurrently backfilled, sloped and topsoil replaced.
- No or little revegetation shall take place during LoM to assess the natural revegetation of the areas. If necessary, seeding shall take place.



- All alien vegetation shall be recorded and correctly removed, depending on its control method. The type of alien vegetation can only be established once such vegetation propagates.

Final rehabilitation

- Final sloping of any disturbed areas shall take place.
- Already existing access roads shall be used and therefore, roads shall not be removed.
- Any final topsoil shall be replaced.
- If natural revegetation does not take place, all disturbed areas shall be revegetated in accordance with a revegetation plan.
- All alien vegetation shall be removed.
- If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, soil shall be analysed and any deleterious effects on the soil arising from the prospecting operation, shall be corrected.
- Photographs of the site, before and during the prospecting operation and after rehabilitation, shall be taken at selected fixed points and kept on record for the information of the DMR.
- Waste material of any description shall be removed entirely from the area and disposed of at a recognised landfill facility. It will not be permitted to be buried or burned on the site.
- Final rehabilitation shall be completed within a period specified by the DMR.
- When prospecting activities cease, an environmental risk report shall accompany the application for closure.
- Rehabilitation shall be monitored for a period of minimum three years after decommissioning.

4.4.3 A site plan indicating at least the total area disturbed, area available for rehabilitation and remediation and the area to be rehabilitated or remediated per aspect or activity

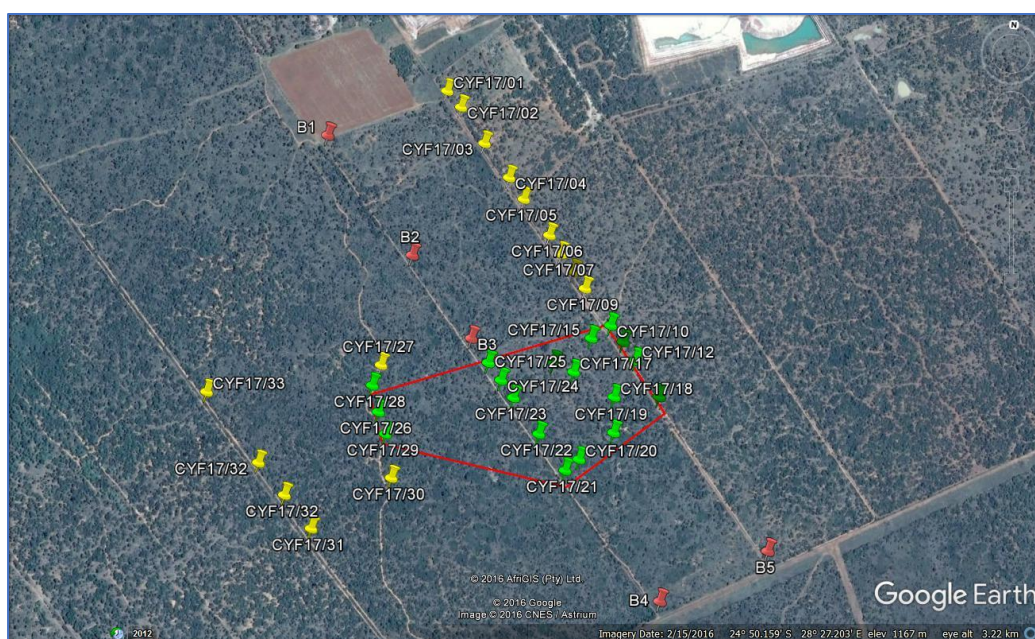


Figure 4: Areas that have been disturbed by drilling

4.5 A review of the previous year’s annual rehabilitation and remediation activities, indicating a comparison between activities planned in the previous year’s annual rehabilitation and remediation plan and actual rehabilitation and remediation implemented

This is the first annual rehabilitation report, mining has not commenced, only prospecting, therefore, no review available of the previous year’s annual rehabilitation and remediation activities.

4.6 Details of the timeframes of implementation of the current, and review of the previous rehabilitation activities

Drill holes on portion 61 and 62 has already been backfilled. Further monitoring to take place. As soon as drilling takes place on portion 3 of Cyferfontein, additional concurrent rehabilitation must take place.

SECTION 5: POST REHABILITATION ACTIVITIES

Post rehabilitation will take place after closure of the prospecting activities. These activities will be in the form of maintenance and monitoring. This section will form part of the closure plan to be compiled when closure of mine is neared. If, during monitoring it is noticed that re-vegetation or removal of plants is necessary, or if during maintenance re-vegetation or removal of plants must be done.

5.1 Monitoring plan

The mitigation measures as described in section 3 of the EMP have been used adequately by various mines and on various other sites. The mitigation measures are specific to the nature and significance of the impact. Based on the continual improvement principle, where mitigation measures can be improved on, this will be done. The main reasons for this would be improvement in technology to address impacts and new developments that may require additional measures. No additional specialist studies have been done for the prospecting due to the small nature of a prospecting right.

Table 7: Monitoring programme

IDENTIFIED IMPACTS	FUNCTIONAL REQUIREMENTS	TIMEFRAMES
Inspection of vehicles	<ul style="list-style-type: none"> Vehicles will be inspected at the workshop on portion 7 of the farm Cyferfontein. 	Weekly
Revegetation and alien occurrence	<ul style="list-style-type: none"> Record revegetation and alien occurrence 	Weekly
Erosion of rehabilitated areas	<ul style="list-style-type: none"> Record of the existence of erosion in a particular location. 	Weekly
Mining plan	<ul style="list-style-type: none"> Location of boreholes and trenches will be compared to the approved mining plan and buffer zones of the wetland. 	Monthly

IDENTIFIED IMPACTS	FUNCTIONAL REQUIREMENTS	TIMEFRAMES
Groundwater quality	<ul style="list-style-type: none"> • The mine shall test and analyse the groundwater from landowners' boreholes prior to prospecting activities. • The mine shall concurrently analyse the groundwater from landowners' boreholes during prospecting activities. 	Prior to prospecting, as arranged with the landowners
EMP Performance assessment	<ul style="list-style-type: none"> • Assessment of mine performance against the approved EMP 	Every three months

5.2 Internal, external and legislated audits of the monitoring plan

The monitoring plan will be audited to ensure effective implementation.

5.2.1 Person responsible for undertaking the audit

Mine Manager for internal audits and consultant for external audits.

5.2.2 Planned date of audit and frequency of audit

Annually.

5.2.3 An explanation of the approach that will be taken to address and close out audit results and schedule

Refer to the monitoring plan in section 5.1 for approach that will be taken to address and close out audit results and schedule.

5.2.4 Disclosure of updates of the plan to stakeholders

The audit report will be sent to DMR and Department of Water and Sanitation (DWS) once finalised, therefore on an annual basis.

SECTION 6: ANNUAL UPDATED FINANCIAL PROVISION

This section is the annual updated financial provision for Cyferfontein Mine. This section includes

- i. an explanation of the closure cost and methodology,
- ii. auditable calculations of costs per activity or infrastructure,
- iii. cost assumptions;
- iv. and monitoring and maintenance costs likely to be incurred both during the period of the annual rehabilitation plan and those that will extend past the period of the final rehabilitation, decommissioning and mine closure plan, on condition that the monitoring and maintenance costs included in previous annual rehabilitation plans must be accumulated into subsequent versions of the annual rehabilitation plan until such time as the monitoring and maintenance obligation is discharged



6.1 Financial provision methodology

The following is extracted from the Annesley Andalusite Mine Closure Liability Update (Shangoni Management Services, 2016):

The CES Group was contracted by Shangoni to acquire rates for demolition and rehabilitation of mining activities (Table 10). Procurement of budget pricing approached by identifying reputable demolition companies, various sites of varying sizes at various locations and identifying local companies in the study area with the ability to work on similar scale project. A bill of quantities (BoQ) was distributed to the various companies. The table below indicates the number of contractors to which the BoQ was distributed and the number of tenders received afterwards.

Table 8: Results of rate acquisition process

Area	Number of contractors identified	Tenders received
National	6	1
North West	6	3
Free State	5	1
Northern Cape	7	2
Limpopo	5	3 (One joint venture with national based company)
Total	29	10

The prices received from contractors were reviewed by the CES Group, after which average and meridian rates were drawn rates to correctly establish a baseline rate. The following methods to establish the baseline rates were followed:

- Price A - Average if priced – across the board average of rates received per category;
- Price B - Median pricing – “middle” rate of all rates in series per category;
- Price C - Average between Price A & B;
- Price D - Average rate excluding top and bottom rates per category.
- Price D - rate category that was used in the closure cost calculation, unless otherwise indicated in the closure cost spreadsheet “Rate” sheet.

The closure budget consists of the following areas:

- Physical - Demolition of infrastructure where infrastructure does not form part of end land use. Potential to transfer to third party was identified.
- Biophysical - Actions to safeguard (making safe and stable) and re-establish the biophysical to ensure a sustainable landform and mitigate identified risks. This includes levelling of the dumps, seeding of the trees and grass.

6.2 Auditable calculations of financial provision per activity or infrastructure

Estimations are used due to the type of rehabilitation necessary



6.3 Financial provision estimation

The following table contains a summary of the calculations made for the financial provision based on the rehabilitation monitoring plan.

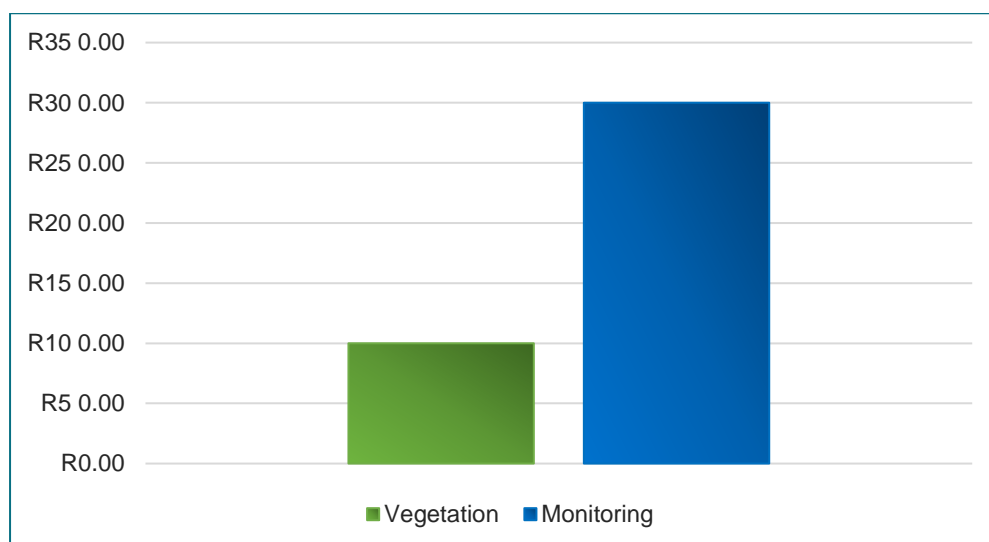
Table 9: Summary of the financial provision estimation until closure

Item	Size	Rate	Final cost	Comment
Vegetation				
Seeding	Estimate	R 5 000.00	R5 000.00	Only of necessary
Removal of alien vegetation	Estimate	R 5 000.00	R5 000.00	Only of necessary
Monitoring				
Soil erosion, vegetation growth, and alien vegetation monitoring	Quarterly for 1 year	R30 000.00	R30 000.00	
Sub-total			R40 000.00	
P&G (13.5%)			R5 400.00	
Contingency (10%)			R4 000.00	
Total			R49 400.00	

Please note, this is only for activities taking place up to the compilation of this report.

6.4 Financial provision assumptions

- Only monitoring to take place.
- Revegetation and alien vegetation removal only if necessary.



SECTION 7: CONCLUSION AND GAP ANALYSIS

The objective of the annual rehabilitation plan will be ensuring the post-closure land capability goals are achieved, in accordance with the overall closure objectives. The monitoring programme was designed to collect information to demonstrate the criteria that was used. This report is the first annual

rehabilitation plan compiled and an explanation of motivations for any amendments made to the final rehabilitation, decommissioning and mine closure plan, given the monitoring results in the previous auditing period and the identification of gaps will only become applicable in subsequent updates.

It should be noted that the mine is currently waiting for execution of a section 102 to incorporate portions 61 and 62 of Cyferfontein into the mining right.

REFERENCES

- Agricultural Geo-Referenced Information System, 2007: accessed from www.agis.agric.za on 2014
- Correspondence with all I&APs
- Department of Environmental Affairs and Tourism, 2006
- Ecca Holdings, 2014: Prospecting Work Programme for Ceramic Clay with respect to the farm Cyferfontein 457 KR, portions 61, 62 and re ptn 3
- GoogleEarth, 2014
- Mucina, L. Rutherford M.C. 2006: The vegetation of South Africa, Lesotho and Swaziland
- Regen Water Laboratory, 2014. Microbiological analysis, chemical analysis
- SANBIGIS, 2014
- Shangoni Management Services, 2011: Cyferfontein Quarry Portion 7 of the Farm Cyferfontein, Environmental Management Programme
- BECS Environmental, 2014: Environmental Management Plan for a Prospecting Right Application
- BECS Environmental, 2018: Environmental Management Plan, Performance Assessment
- Regulations Pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production, GN 1147 of 2015
- Minerals and Petroleum Resources Development Act (Act 28 of 2002 as amended)
- Minerals and Petroleum Resources Development Regulations, GN 527 of 2004 (as amended)
- National Environmental Management Act No 107 of 1998 (as amended)

