mineral resources & energy

Department:
Mineral Resources and Energy
REPUBLIC OF SOUTH AFRICA

CARE AND MAINTENANCE PLAN

SUBMITTED FOR CARE AND MAINTENANCE IN TERMS OF SECTION 24N OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998) AND THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS, 2014.

NAME OF APPLICANT:	**Kophia Diamonds (Pty) Ltd**
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FILE REFERENCE NUMBER SAMRAD: **(FS) 30/5/1/2/3/2/0236 MR**

IMPORTANT NOTICE

Application for Care and Maintenance in terms regulation 16 (Regulations no. 1147) pertaining to the financial provision for prospecting and mining operations read with section 44(aE), (aF), (aG), (aH), section 24(5) (b)(ix), 24(5)(d), 24N, 24P, 24Q and 24R of the National Environmental Management Act, 1998 (Act No. 107 of 1998) as amended.

In terms of section 16(3)(b) of the EIA Regulations, 2014, any report submitted as part of an application must be prepared in a format that may be determined by the Competent Authority and in terms of section 17 (1)(c) the competent Authority must check whether the application has taken into account any minimum requirements applicable or instructions or guidance provided by the competent authority to the submission of applications.

It is therefore an instruction that the prescribed reports required in respect of applications for an environmental authorisation for listed activities triggered by an application for a right or a permit are submitted in the exact format of, and provide all the information required in terms of, this template. Furthermore, please be advised that failure to submit the information required in the format provided in this template will be regarded as a failure to meet the requirements of the Regulation and will lead to the Environmental Authorisation being refused.

It is therefore an instruction that the Environmental Assessment Practitioner must process and interpret his/her research and analysis and use the findings thereof to compile the information required herein. (Unprocessed supporting information may be attached as appendices). The EAP must ensure that the information required is placed correctly in the relevant sections of the Report, in the order, and under the provided headings as set out below, and ensure that the report is not cluttered with un-interpreted information and that it unambiguously represents the interpretation of the applicant.

OBJECTIVE OF THE CARE AND MAINTANANCE PLAN

Common environmental factors to be considered in preparing a care and maintenance plan include:

- how the dispersal of waste dump or tailings material to the surrounding environment can be prevented;
- appropriate storage or disposal procedures for process-related materials from treatment plants and hydrocarbons; and
- the implementation of appropriate bunding or other surface drainage structures to ensure open pits and underground workings do not store water (creating disposal issues if operations recommence) and issues for downstream vegetation systems.

The plan will also need to provide for appropriate measures to prevent erosion, seepage, groundwater contamination and pollution of the surrounding area.

Table of Contents

1. Details of relevant people and timeframes

a) Details of -

i) Details of the EAP

Name of the Practitioner: **ROELINA OOSTHUIZEN**
Tel No.: **087 527 0713**
Cell No.: **084 208 9088**
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E-mail address: **roosthuizen950@gmail.com**

ii) Expertise of the EAP

(1) The qualifications of the EAP

Masters in Environmental Management (UFS)
B-Comm in Human and Industrial- Psychology (NWU)
(With evidence attached as **Appendix 1**)

(2) Summary of the EAP's past experience

(In carrying out the Environmental Impact Assessment Procedure)

Relevant past experiences in carrying out the Environmental Impact Assessment Procedures include Environmental Impact Assessments, Environmental Management Plans/Programmes/ Reports, Performance assessments, Rehabilitation progress assessments, Environmental Liability assessments, Environmental compliance monitoring, Scoping Reports, etc. Please refer to attached CV. (with evidence attached as **Appendix 2**)

iii) Person responsible for implementation

Name of responsible person: **Sam Coetzee**
Tel no.: 076 495 4963
Cell No.: 084 466 1021
Fax No.: **053 802 6394**
E-mail address: Samuel.kophia@gmail.com

iv) Implementation Timelines

- **Mining operations**
  The mining right (FS) 236 MR-C of Kophia Diamonds (Pty) Ltd on the property was granted on NEW ELANDS for 25 years on 10 DEC 2018 from 28/03/2018 to 27/03/2043.

- **Care and maintenance**
  The mine is operating under care and maintenance since 2011 and is applying for this status to continue indefinitely until market conditions and economics makes the project viable again.

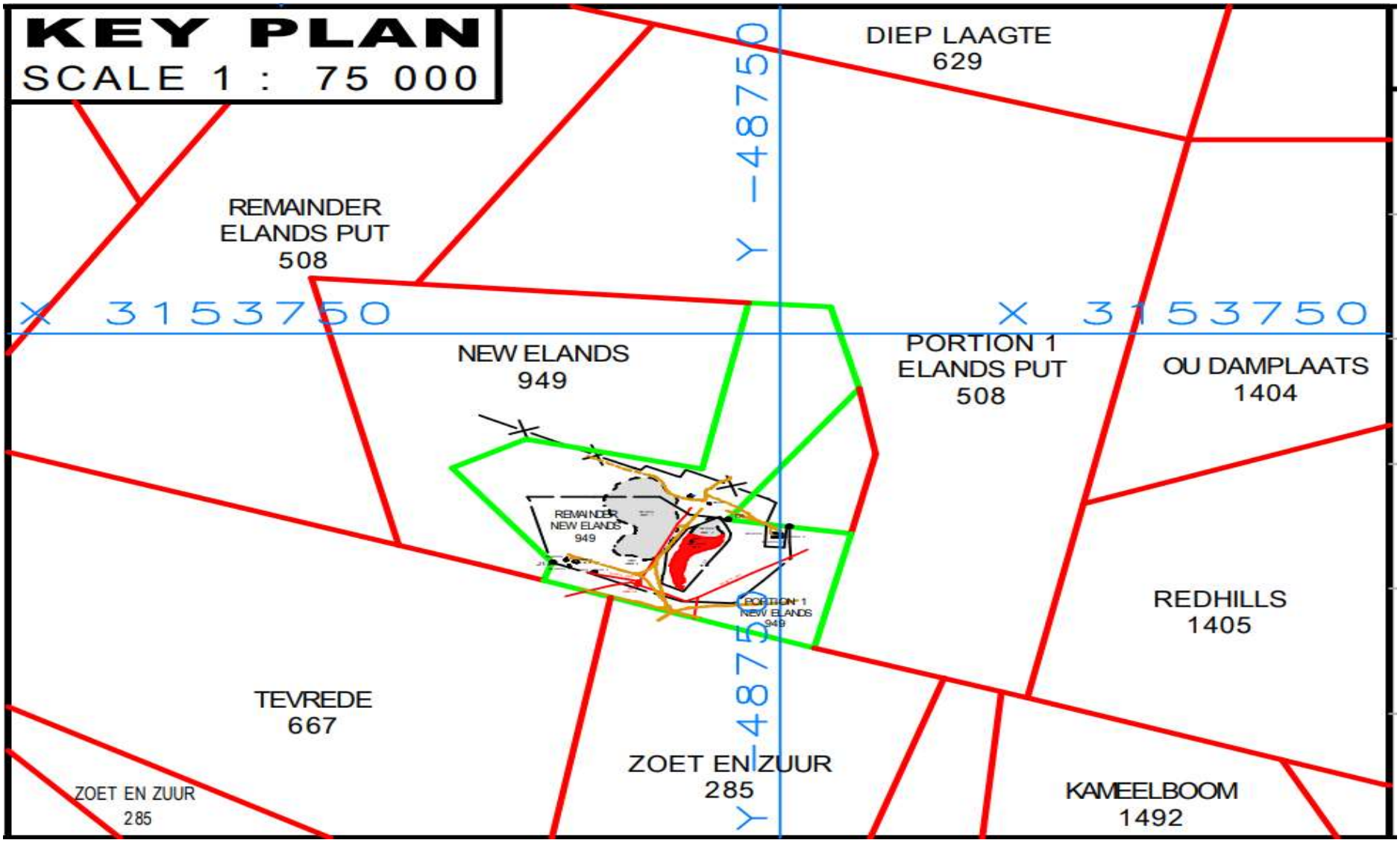


Figure 1. Kophia Diamonds Pty Ltd Locality (Key Plan on 1:75 000)

Figure 2. Google image October 2016

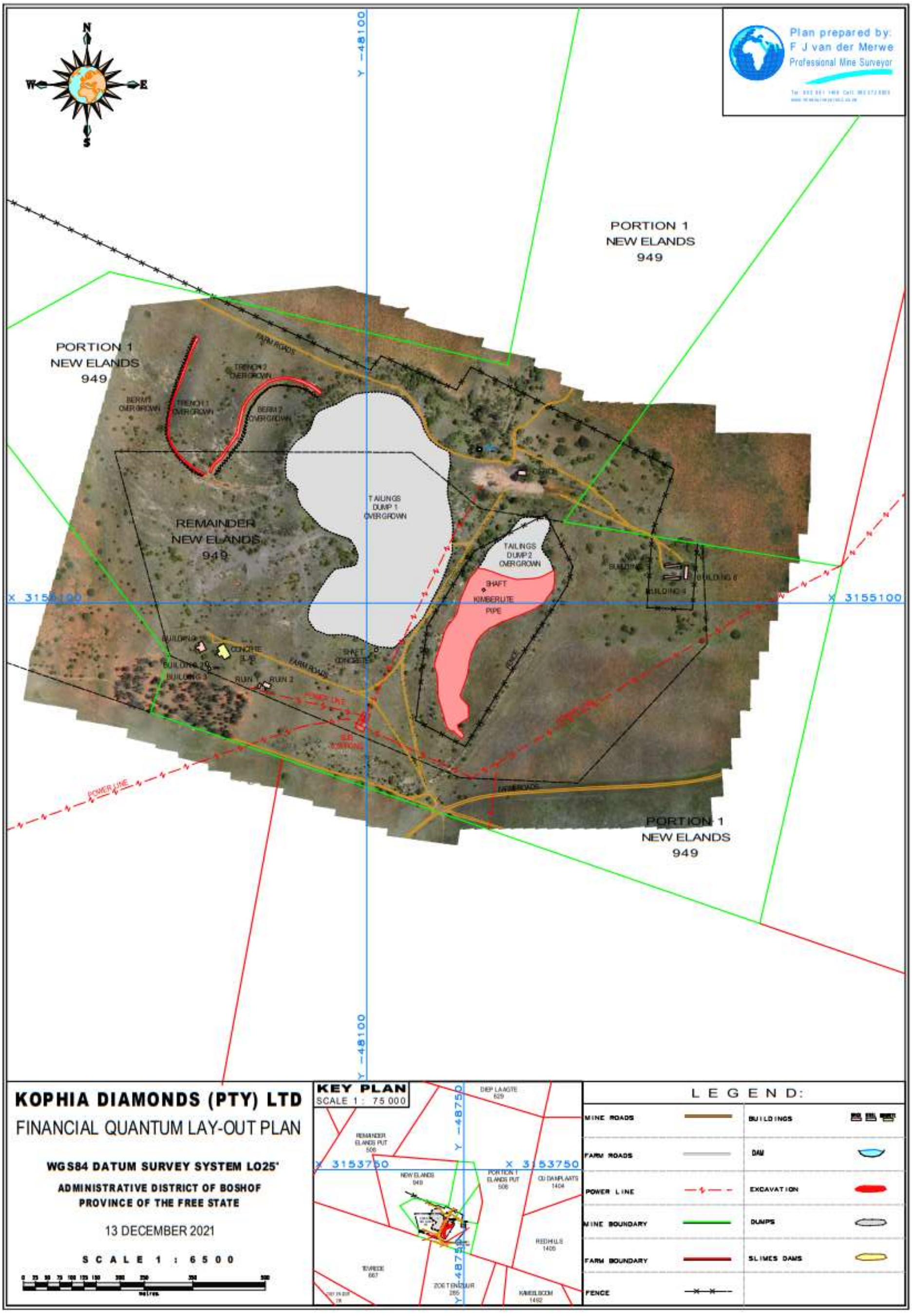


Figure 3. Financial quantum lay-out plan December 2021

2. Motivation for Care and Maintenance Application

(details and conditions leading to an application for care and maintenance or leading to a motivation to remain placed under care and maintenance and a forecast of when care and maintenance may no longer be required)

Whilst the decision to put a mine on care and maintenance is primarily a **business decision**, executing it the right way will save considerable costs, time and effort in the long run and allow for a faster ramp up and resumption of operations should a decision be made to resume operations.

Since 2011 the infrastructure such as the hoist, headgear and all components of the plant were dismantled and removed. The shafts were closed and sealed with a concrete slab initially and later the concrete was removed and replaced with a steel plate and fence.

Structures built and / or renovated specifically for mining purposes, such as the workshop, explosive magazines, wash bays, vehicle maintenance yards, salvage yards and waste disposal sites were removed. Final backfilling/ shaping of the trenches, the storage dam, tailings dumps and slimes dams have not been done. All the above areas are partially rehabilitated and over the years have become re-vegetated.

The key areas that companies should focus on when taking a decision to put a mine on care and maintenance is listed below namely:

- identifying and managing your ongoing environmental obligations with respect to the mine-site;
- dealing with your employees and consultants (this mine had been on care and maintenance since 2011 and there is limited employees or consultants involved);
- auditing and complying with ongoing health and safety obligations (the operation was made safe by Trans Hex in 1996 with concrete covers, which were later removed by Kophia Diamonds in 2005 and replaced with metal plates);
- communicating with shareholders and strategic investors (The current shareholders bought the mine knowing that it is on Care and Maintenance);
- notifying, consulting and managing your financiers and insurers (The current financiers and insurers involved knew that the New Elands mine is on Care and Maintenance since they acquired the mine);
- maintaining and retaining your mining tenements and other titles (legal compliance is done for the right);
- managing your ongoing contractual obligations and communications with counter-parties (During the inspection the farm owner indicated that he is aware of the care and maintenance status of the mine for an extended period already);

Due to the age of the mine and the old infrastructure and underground mine planning that stretched over a very long time, from 1911 to 2011 (100 years), although very positive in terms of yield the costs to operate the underground mine to applicable and recent legislation and Mine Health and Safety standards could not be maintained and kept up and more investment is needed to develop the mine to correct standards to operate underground again. The current investors do not have any plans for the near future to start up the mine again without new investors. Due to current economic

conditions, the more recent effect of the Corona Virus and diamond prices over the last few years - this seems not to be possible in the near future.

3. Background Information

Kophia Diamonds (Pty) Ltd (1965/003692/07) is the lawful holder of a Converted Mining Right converted by the Minister of Mineral Resources in terms of Item 7(3) of Schedule 2 to the MPRDA the conversion have been granted and notarially executed, which mining right entitles the applicant to mine for diamonds (Kimberlite) in, on and under The farm Remaining Extent of New Elands No 949, Boshof District, Free State Province, Measuring 184.6304 (One hundred and eighty four comma six three zero four hectares).

New Eland Diamonds Ltd was originally registered in Bloemfontein on 15th December 1911. It is located on the Remaining Extent of New Elands No 949, Boshof District, Free State Province.

Mining commenced at New Elands Mine in 1912 and continued until 1931 when it closed as a result of the depression. The underground mine remained closed until 1966. The mine was reopened and mined from underground between 1966 and 1976. The mine flooded during 1976 which resulted in its closure (Venmyn, 2004).

Trans Hex took over the mine from 1988 – 1996 for the purposes for treating tailings. During the previous operations two small pipes on the property were mined, a larger deposit to the north and a smaller richer deposit to the south with the formation of two blast holes. The pipes lie approximately 300m apart in a north, north east orientation.

The two pipes are intersected by three kimberlite fissures known as:

- West fissure which intersects South pipe,
- No 1 and No 2 East which intersect the North Pipe.

Both pipes were mined to a depth of 207 m (13 Level) below surface. There are two shafts known as the Main shaft and the Falck Shaft. The main shaft was a three-compartment shaft with two hoisting compartments and a Mary-Anne Compartment.

The shafts were sealed with concrete covers in 1996 by Trans Hex; these concrete covers were later removed by Kophia diamonds in 2005 and replaced with metal plates.

According to the assessment on the resources that was carried out in 2004 the north pipe showed good perspectivity at the given cost, grade and diamond value for that period.

The current mining area is disturbed as a result of previous mining activity and no further disturbances to arable land, grazing or wilderness potential will occur once

operations re commence. Future disturbances can be contained within historically altered areas which will limit the overall impact of the surface mining activities.

Table 1 appended is a summary of annual production for the Years 1913 – 1930 and monthly sales for the period June 1981 – December 1982, when the Ochta Diamond Group operated the mine. As can be seen from Table 1 the mine produced a total of 367 522 carats from 1702665 tons i.e. an average recovery grade of 21,58 carats per 100 tons up to December 1982.

In addition, Trans Hex reported treating most of the dump material from 1988 – 1996, processing 880 000 tons for the recovery of some 75 000 carats i.e. an average recovery grade of 8, 5 carats/100 tons. The diamonds were reported to have realised US$40 per carat.

The above figures indicate that a total of 442 522 carats were produces from 1,702 665 ore tons i.e. a yield of 25,98 carats per 100 tons. Although it is likely that not all mine production has been recorded historically, these figures are considered to furnish a fair idea of the order of production from the mine.

History of Processing and Mining:

Summarized History out of the Prefeasibility Valuation of the New Elands and Blaauwbosch Diamond Mines Free State Province Republic of South Africa by Dr. M.v.R Steyn, 20 April 2003

Table 1: Past production New-Elands

PAST PRODUCTION

YEAR	TONNES TREATED	CARATS PRODUCED	GRADE Ct/100t
1913	125 889	21 798	17,32
1914	101 072	23 684	23,43
1916 (6 months)	54 035	9 737	18,02
1917	140 179	23 710	16,91
1918	86 639	16 212	18,71
1920	91 271	17 366	19,03
1922 (3 months)	29 129	5 352	18,37
1923	161 742	31 762	19,64
1924	151 740	27 680	18,24
1925	132 195	36 080	27,29
1926	135 289	37 101	27,42
1927	126 453	29 411	23,26
1928	122 136	23 897	19,57
1929	112 349	29 073	25,88
1930 (10 months)	98 653	31 325	31,75
TOTAL	1 668 771	364 188	21,82
1981			
June	1 900	253	13,32
July	1 849	194	10,49
August	2 020	215	10,64
September	1 328	199	14,99
October	3 810	189	4,96
November	8 252	437	5,29
December	3 100	255	8,20
TOTAL	22 259	1 742	7,82
1982			
January	861	88	10,22
February	702	61	8,69
March	2 095	241	11,50
April	2 046	324	15,84
May	2 188	455	20,80
June	1 660	169	10,18
December	2 083	254	12,19
TOTAL	11 635	1 592	13,68
GRAND TOTAL	1 702 665	367 522	21,58

4.4.2 Prospecting:

During 1983 and 1984 the Octha Diamond Group carried out a limited surface and mining exploration programme (under the direction of the undersigned), as part of a Four-phased, Feasibility Study into the reopening of Blaauwbosch Mine and expansion of operations at New Elands Mine.

The planned four-phased programme involved i.e. the following:

Phase I: Core drilling for structure and ore reserves within diamondiferous pipes, (two at New Elands and one at Blaauwbosch) and four kimberlite-filled fissure bodies, (two at each mine). Surface and underground geological mapping and surveying.

Phase II: Bulk sampling of the pipes and fissure bodies to confirm ore grades and diamond qualities and valuations.

Phase III: Economic evaluation of ore reserves and resources, and Feasibility Studies of each mine.

Phase IV: Mine development and diamond production.

Due to financial constraints, only Phase I and part of Phase II was completed thus only permitting the completion of a Prefeasibility Study of the mines upon which this Valuation Study is based.

Summarised Exploration Programme

The Results of this programme are considered to be significant, in view of the planned development at both mines now being considered by Bellsbank Mine Number One (Pty) Ltd.

During the 1981/3 Exploration programme (Phase I), a total of 62 surface and underground coreholes was drilled, equal to 4840,74m, during the course of which three Kimberlite pipes and four Kimberlite filled fissure systems were delineated. A total of 103 kimberlite intersections was obtained, 25 within pipe ore bodies and 78 within kimberlite fissures.

The inaccessibility of the underground workings permitted only the drilling of surface holes at Blaauwbosch, where 3 pipe and 11 fissure intersections were obtained, whereas underground drilling only was executed at New Elands, resulting in 22 holes penetrating the North and south Pipes, and 67 holes intersecting the three fissures.

Details are shown in attached borehole Schedules Figures NEM 1 to 2-03 and NER 1 to 3-03 (New Elands Mine).

Results of Development + Bulk Sampling – New Elands Mine

As part of Phase II, 319m of primary and secondary exploratory development was done on No 13 Level, 207m below surface. This involved:

- Development and trail mining of part of the West Fissure.
- Stope preparation and test mining of the North Pipe.
- Raise development of No 2 East Fissure north of the North Pipe.
- Improvement of ore handling facilities.

From June 1981 – December 1982, a total of 33 894 tons of ore was treated at New Elands, for the production of 3 334 carats, i.e. a yield of 9,8 carats/100 tons. Monthly recoveries ranged from 4,96 carats/100tons to 20,8 carats/100 tons.

Bulk sample testing of individual ore bodies, indicates the following:

BULK SAMPLE TESTING – NEW ELANDS MINE

ORE BODY	TONS SAMPLED	YIELD ct/100 tons
North Pipe 13L	5000	17
West Fissure 13L	600	35
Main Tailings Dump	2000	12,6

In this connection, it should be noted that finer crushing of the ore to- 12mm and selective milling, has been shown to liberate up to 50% more diamonds, with a resultant higher yield.

Also significant is that the Ore processing Plant at New Elands Mine, used neither Dense separation (DMS) equipment nor diamond Sortex Units in the metallurgical process of the 25tph facility.

3.1 Description of the property

Farm Name:	A portion of Portion 1 and the Remainder of the Farm New Elands no. 949 situated in the Magisterial District of Boshof, Free State Province
Application area (Ha)	184.6304
Magisterial district:	Boshof
Distance and direction from nearest town	The project is located approximately 35 km west of Boshof and 45 km north of Hertzogville located in the Magisterial District of Boshof in the Free State Province. The site can be accessed by means of a gravel road off the R64. This is the tarred main road between Boshof and Dealesville, which bypasses the site approximately 8km to the south. The site is also accessible via a gravel road off the R59 between Hertzogville and Dealesville, which runs in a north south direction approximately 3km to the east of the site.
21 digit Surveyor General Code for each farm portion	F00400000000094900001 F00400000000094900000

3.2 Locality map

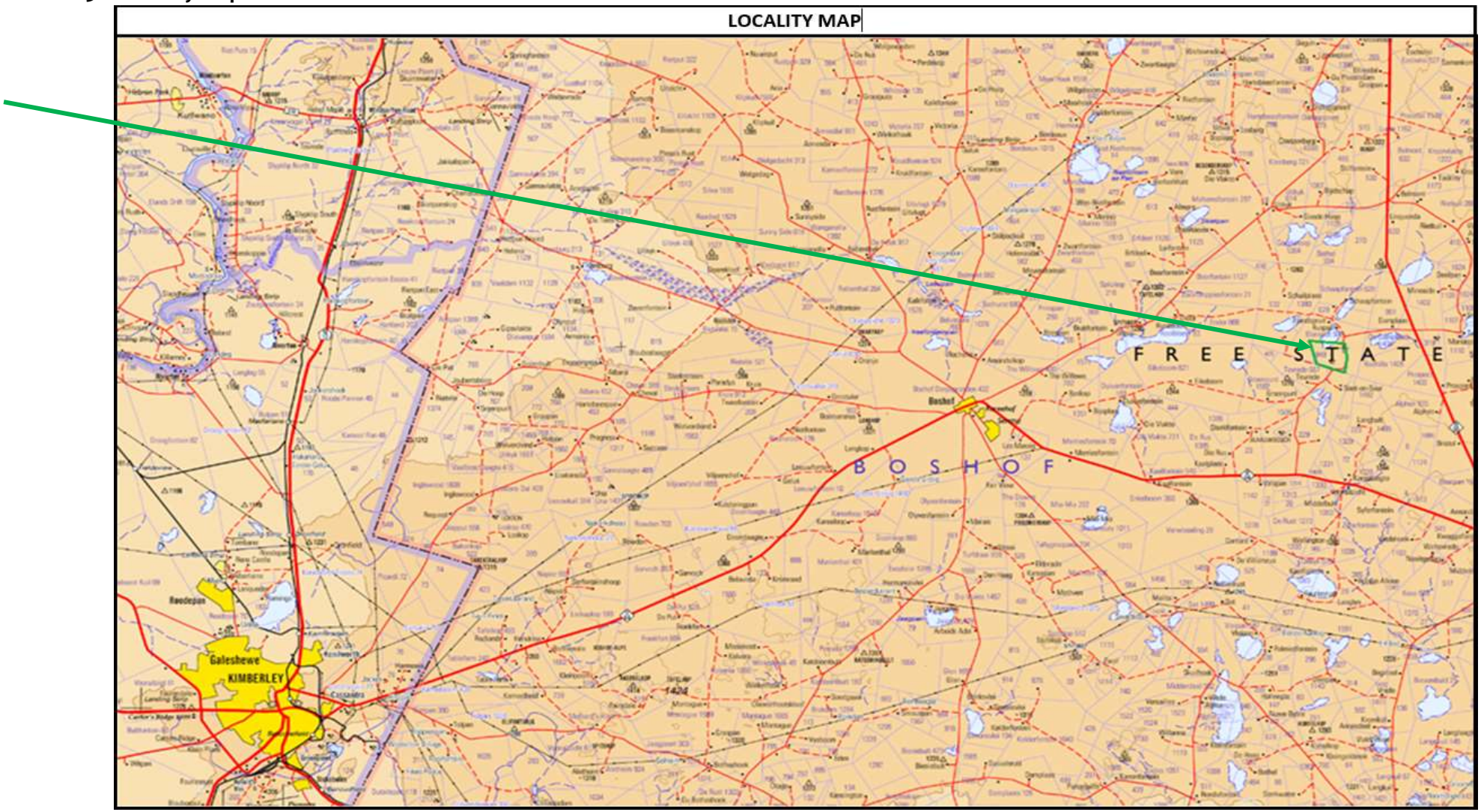


Figure 4. Locality map (Topocadastral Map No. 2824, Kimberley) indicating the location of the mine site (indicated in green with arrow).

3.3 Description of Mining activities

Since 2011 the infrastructure such as the hoist, headgear and all components of the plant were dismantled and removed. The shafts were closed and sealed with a concrete slab initially and later the concrete was removed and replaced with a steel plate and fence.

Structures built and / or renovated specifically for mining purposes, such as the workshop, explosive magazines, wash bays, vehicle maintenance yards, salvage yards and waste disposal sites were removed. Final backfilling/ shaping of the trenches, the storage dam, tailings dumps and slimes dams have not been done. All the above areas are partially rehabilitated and over the years have become re-vegetated.

No mining activities are proposed for the period in which the mine is under care and maintenance. However, the mining activities that was and will be followed once the mine is no longer under care and maintenance will be discussed below.

At this stage of the project the mine will have to be dewatered as planned. Once the workings are dry, access will be obtained to the working surfaces below the 50m pillar that must be left in situ as a support for the tailing's deposition in the pit above.

Access will be gained 250m below surface and this will entail safety engineering and support structures where necessary.

Mining will take place in two phases, the first phase being the mining of the smaller, southern deposit and adjacent fissures while the second phase refers to the mining of the larger northern deposit and adjacent fissures.

Kophia Diamonds (Pty) Ltd uses the inclined chambering mining method. This method is essentially a combination of shrinkage, stoping and caving, in which advantage is taken of the enormous pressure exerted by the loose rock, which through the collapse of the kimberlite pipe walls accumulates in the open excavation. The fissures will be mined by means of a fissure drive and a rock drive. The fissures will then be stoped out with loading places 5m apart.

Two shafts exist adjacent to the two deposits, and these will be re-opened for use. One plant will be erected close to the Falck shaft (Phase One), this plant will also be used during phase two.

Due to the flat nature of the terrain and the mining method to be used for ore extraction, entry will be made through a shaft.

Mineral Processing:
Once the kimberlite is mined, it is sent to be processed in recovery plants, where it is first crushed to manageable proportions. The recovery process begins as the material passes

through the first series of rotary washing pans. Here it is mixed with puddle, which has a specific gravity of 1.25 in comparison with a diamond's 3.5 and is kept in suspension by revolving arms with triangular teeth. The heavy concentrate settles to the bottom with most of the bigger diamonds and moves to the outer rim of the pan where it is drawn off.

The lighter mass revolving in the pan eventually escapes over a weir in the middle and runs over screens which separate particles bigger than 10mm in diameter from smaller ones. Undersized particles pass to secondary pans while the oversize goes to a re-crush section and run through the process again. A further one percent of concentrate emerges from these secondary pans, and goes on to the recovery plant by conveyor belt.

The residue in the secondary pans is passed over even finer screens sifting concentrate down to 3mm across and the oversize is disposed of as waste or 'tailings. The material less than 3mm across is pumped to hydro cyclones, where the solids are pulled out and passed to tertiary pans where even more true concentrate is recovered. At the recovery plant the concentrates, which have emerged from the rotary pans, are thoroughly washed on a 3mm vibrating screen and the undersize are pumped back to the re-concentrating pans of the washing plant.

The oversize goes on to the heavy media separation cone containing a charge of ferro-silicone and water, which has a specific gravity of 2.95. Revolving scrapers keep the mixture in suspension. When the concentrate reaches the cone, the material with a specific gravity of less than 2.95 rises to the surface, overflows and is discarded. The heavier material sinks, and is removed and is then raised to a secondary heavy media separation cone where the charge has a specific gravity of 3.15. The overflow is again discarded and the heavier fraction, comprising about 50 per cent of the feed, is removed, sized and washed ready for final recovery of the diamonds.

The feed then passes to the grease-belts, covered with a thick layer of highly refined grease and sloped across the direction of movement. These belts will catch diamonds bigger than 3 mm across. Water runs over the surface in a wide stream and concentrate from the heavy media is separator section is dropped on to the belt in an even flow. Other minerals in the concentrate are washed over the surface of the grease to waste. The concentrate less than 3mm across goes over electromagnetic vibrating screens which remove all the water, then gravitate down towards the grease tables. These have sloping, three-stepped decks, which are vibrated as the concentrate steadily passes over them. The water washes away the gravel while the diamonds stick to the grease and are scraped off. The diamonds are given a final cleaning before they are graded.

3.4 Description of Baseline Environment

i) Geology

Geological Setting:

According to the 1:250 000 Geological Series (Sheet 2824 Kimberley – Geological Survey Institute), the geological substrate at New-Elands consists of Aeolian Sand and Calcrete, Calcified Pandune and Surface Limestone.

Regional Geology

The area of the northwest Free State, in which the New Elands kimberlites occur, is underlain by flat lying shales, siltstones and mudstones of the Lower Karoo Supergroup (Dwyka Formations), variable in thickness, but estimated to be an average of 190m. These rocks unconformable overlie andesitic lavas at least 500m thick of the Ventersdorp Supergroup. The Karoo Supergroup is locally intruded by dolerite sills and kimberlites.
The New Elands Group is one of a number kimberlite intrusions, both small pipes and fissures within a N60°E trending belt some 30km long and 6km wide, centred on a point 35km east of Boshof, 80km east-northeast of Kimberley known as the Boshof Group.

The site forms part of the Tierberg Formation of the Karoo Sequence and consists of shale, siltstone and sandstone. The shale weathers fast and outcrops are limited to dolerite capped hills within a landscape of low relief and rolling or flat plains.

Diamondiferous kimberlites occur as near-vertical pipe-like intrusions as well as fissure fillings. Up to four different kimberlite types are present within a single intrusive body.

Local Geology

Two kimberlite pipes are intruded into the Karoo Supergroup shales. The larger North pipe is associated with a fissure striking 040°, known as the No2 East fissure with a mapped strike of some 200m. The South pipe is intersected by the so-called West Fissure, striking 350°, it features out about 100m north of the pipe. The west fissure appears again in the vicinity of the main Shaft about 75m north of the feathering where it is called No 1 East Fissure, despite it being the western most fissure.

The kimberlites are Group 11 micaceous types. The pipes are tuffisitic kimberlite breccias and the fissures hypabyssal facies.

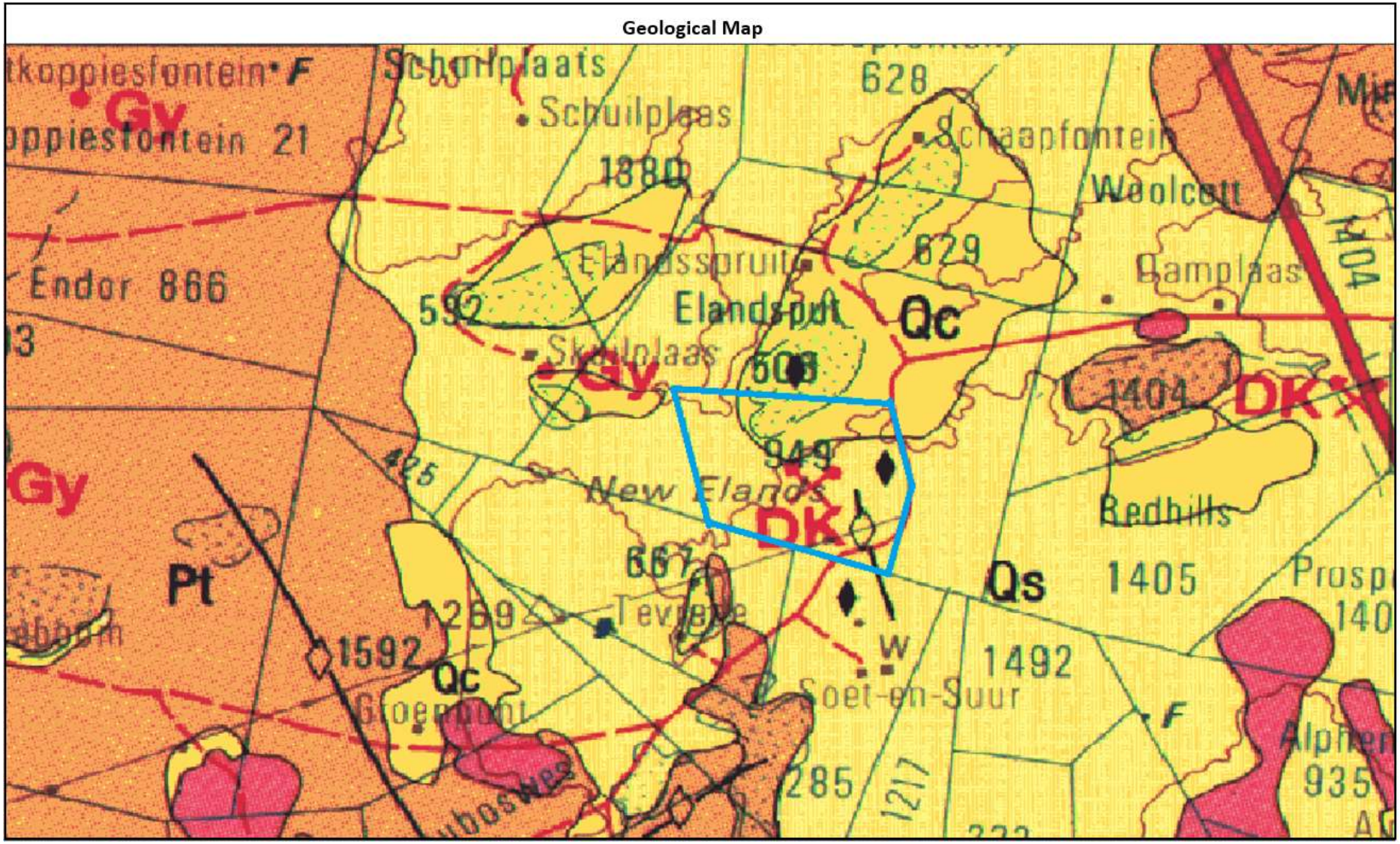


Figure 5. Geological map with the site area indicated in blue. (Source: 1:250 000 Geological map Sheet 2824 Kimberley – Geological Survey Institute)

ii) Climate

Regional Climate

The climatic zone is characterised by hot summers with high rainfall and cold dry winters.

Rainfall in the area is unpredictable. The majority of rain (88.2%) falls between October and April in the form of thunderstorms. During this period rain can be expected every 5 days.

The winters are very dry and rainfall is rare. Any precipitation that does take place tends to be brought about by cyclones penetrating the interior of the country.

The prevailing winds in the area are from a north to north-westerly direction. The strongest winds tend to blow from a west-south-westerly direction to a north-north-westerly direction and occur from August to December. October and November are the windiest months.

The various climatic parameters such as rainfall data, temperature data, evaporation rates, wind speed and direction have been obtained from the weather station at Kimberley.

Rainfall

Table 2: Mean monthly and annual rainfall.

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Annual
Rainfall	7.0	7.0	12.0	30.0	42.0	46.0	57.0	76.0	65.0	49.0	16.0	7.0	384.9
Days of Rain	0.9	1.0	1.5	3.6	5.0	6.0	6.6	7.0	7.7	5.2	2.6	1.3	

Table 3: Maximum rainfall intensities

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
24 HRS	22.0	26.0	44.0	35.0	60.1	60.5	45.0	88.0	54.0	51.0	55.0	18.0
24 HRS/ 50 YRS	26.6	23.4	24.1	53.8	41.2	70.7	65.1	58.9	72.1	65.9	36.8	26.0
24 HRS/ 100 YRS	31.0	27.3	28.0	61.8	48.7	80.9	73.8	66.5	81.4	75.2	42.2	30.4

Temperatures

Table 4: Mean temperatures

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Maximum	19.0	22.2	24.7	29.2	30.4	32.7	32.9	31.2	29.2	25.8	22.4	19.2
Minimum	0.4	3.3	7.0	12.1	14.0	16.2	16.9	16.2	14.0	9.7	5.0	1.3

Wind

Table 5: Mean monthly wind speed.

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Speed (m/s)	4.0	4.3	4.6	4.8	4.9	4.7	4.4	4.0	3.8	3.7	3.6	3.8

Table 6: Mean wind direction and speed.

	N	NE	E	SE	S	SW	W	NW
Wind direction (m/s)	159	98	39	35	55	78	110	155

Evaporation

The gross annual evaporation rate is on average 2 356mm. Thus, with an annual average rainfall of 380.8mm the net evaporation may be calculated to be 1 984mm. This denoted extremely dry conditions.

Incidence of Extreme Weather Conditions

Frost: This can occur from April to October and temperatures during this period can be extremely low. The lowest recorded temperature in this area is -7.6°

Hail: This is a very rare occurrence in the region. Hail does, however, occur at an average of 1.2 days per year in the area.

Drought: Temperatures during the summer months frequently exceed 30°C and can reach 40°C at times. These high temperatures coupled with low rainfall make the region susceptible to very dry conditions.

High winds: High winds occur infrequently in the region.

iii) Topography

The site is situated on the Highveld of the inland plateau, at an altitude of 1200m – 1400m above sea level. The landscape slopes generally to the south west and gradients are very shallow.

There is evidence of local disturbance within the claims area where the topography has been altered due to the prior mining activities. The two blast holes currently manifest as one elongated hole, measuring approximately 500m long and 100m at its widest point. This hole may be estimated to be approximately 10 m deep with steep sides (i.e. in excess of 1:1 gradients).

Remnants of tailings dumps are visible, but the veld has begun to rehabilitate over much of the old tailings area. Only a few dumps are still bare and prominent. The old slimes dam is not prominent from the ground.

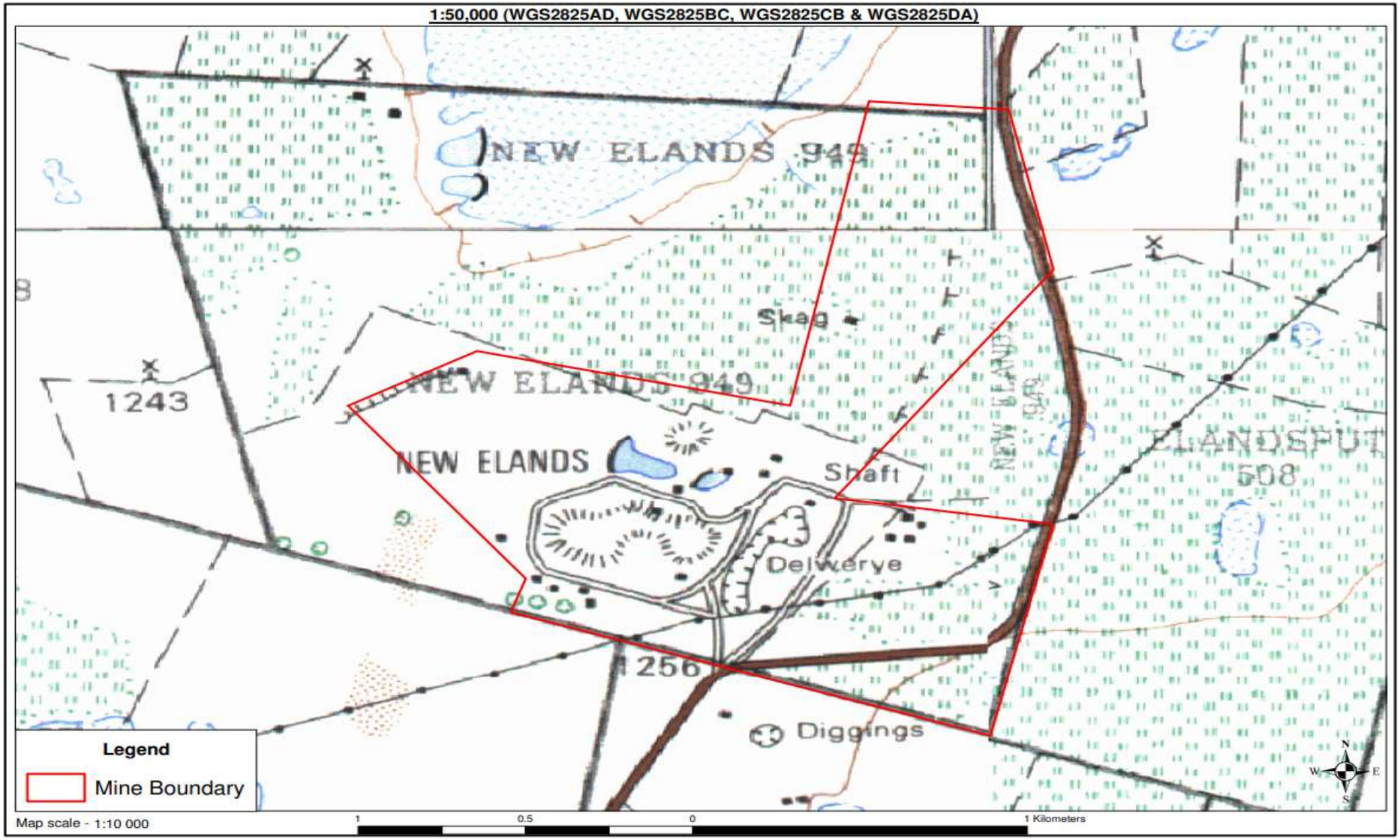


Figure 6. Topographical map 1:50 000

iv) Soil

Soil classification is done according to the Taxonomic System from South Africa (Macvicar *et al,* 1991). The site falls under land type Ae46a, according to the Land Type Map 2824 Kimberley (Department of Agriculture – Technical Services). These soils are red to yellow freely drained soils.

In the direct perimeter of the quarry the soils are slightly erodible and classified into the Askham from. The topsoil is a loamy sand orthic A horizon that overlies a shallow (less than 100mm) to deep (more than 2m) yellow brown sub-horizon. Hardpan carbonate (Calcrete) underlies the yellow-brown apedal horizon.

Lighter coloured (yellow-brown) soils are commonly found near pans and flood plains where the Iron Oxide dissolve and where a higher concentration of calcium carbonate is present. These soils have a high base status and are usually more than 300mm deep.

v) Land Capability and Land Use

Pre-mining land capability

It is difficult to determine with certainty the pre-mining land capability of the site. Considering the surrounding un-mined area, it was most likely cultivated, or at least suitable for cultivation before the mine was proclaimed in 1911.

The claims area (measuring 57.4ha) is mostly disturbed as a result of the aforementioned mining activities. All mining and associated activities will be concentrated within this claims area, so no further disturbance of virgin land with arable, grazing or wilderness potential will occur.

Land use

- **Pre-mining land use:**
  It is difficult to determine with certainty the pre-mining land capability however, it was most likely cultivated.

- **Historical agricultural production**
  Much of the adjacent land is presently used for the production of maize crops, and a substantial part of the site is also cultivated. Some grazing is also evident in the area. The nature of the grazing is sweet due to the clay substrates, but production of sweet grass is limited nowadays due to the conditions of the pastures. This, as a result of overgrazing, has resulted in sub-optimal grazing.

- **Evidence of misuse**
  In addition to the disturbances caused by past mining activities, the general condition of the site and surrounds is degraded. In limited patches where the topsoil has not been disturbed, the veld is in a moderate condition with Red Grass dominating the grass layer. Umbrella Thorn (*Acacia tortillis*) is abundant in areas where the soil surface was disturbed in the past.

- **Existing structures**
  An office building, housing compound and manager's house still remain on the site. These are reasonably intact and will be used in the new mining operations. An old prefab structure which was partly destroyed by fire will be demolished during the initial site clean-up.

vi) Natural Fauna

Common species

No large mammals were encountered during the site visit by the Landscape Architect on 8 January 2002. Due to the nature of the environment, small antelope such as duikers could be expected as well as dassies and jackals. Birds such as guinea fowl, korhaan, plover, francolin, crows as well as the common house sparrow and others may also be found.

In addition the following species occur: Aardvark (anteater), porcupine, rodent, bats, frogs, beetles, butterflies, wasps and other common taxa.

Sightings of reptiles such as the leguaan, cape cobra and puff adder occur in the summer months.

Changes that have taken place to the natural vegetation over the years have resulted in the reduction of the indigenous animal species in the area, although bird species are relatively abundant.

Endangered or rare species

No endangered wild animals, as listed in Schedule 1 of the Nature and Environmental Conservation Ordinance of 1974, are known to occur in the area.

vii) Natural Flora

Dominant species

The vegetation of the area may be described as Pan Turf Veld (Veld Types of Southern Africa. Acocks 1975). This is veld occurring on the turf soils of the flats around the pans and constitutes a very dense *Themeda* veld. Not much of this veld is left in its original condition, however, and overgrazing in the region has led to other species replacing *Themeda* as well as invasion by Karoo species. There are a number of annual indigenous pioneer and climax species of grasses to be found as well as some invasive Karoo species. There is a significant amount of natural vegetation that has been reestablished within the mining area since the mining operation ceased. There is also a significant number of alien plant species that have become established on the site as well.

The following grass species were noted on the site:

- *Enneapogon cenchroides*
- *Eragrostis obtuse*
- *Eragrostis cenchroides*
- *Eragrostis superba*
- *Stipagrostis uniplumis*
- *Themeda triandra*

- *Aristida congesta subs p. baribicollis*
- *Sporobolus sp*
- *Cynodon dactylon*
- *Digitaria eriantha*
- *Fingerhuthia Africana*
- *Panicum species*

Indigenous trees and shrubs are fairly well represented. The woody layer is dominated by *Acacia tortillis, Acacia erioloba* is also present. Other species that were noted includes *Acacia hebeclada, Acacia karoo, Rhus lancea. and Accacia mellifera.*

Endangered or rare species

No endangered or rare species were noted on the site.

Invader or exotic species

Exotic invader species that were noted on the site includes the following:

- *Prosopis* species and due to its aggressive invasive properties, this invader must be managed to control its spread. *Prosopis* invades quickly and compromises the natural grasslands and indigenous thorny Acacia bushveld.
- Sesbania grandiflora
- *Opuntia rosea (*Torch cactus)
- *Pinus species* (Pine Tree)
- *Nicotinia glauca* (Wild Tobacco bush)
- *Schinus molle* (Pepper Tree)
- *Agave species* (Sisal)
- *Eucalyptus species* (Blue Gum tree)
- *Salsola kali* (Russian tumble weed)
- *Melia Azederach* (Syringa Berry)

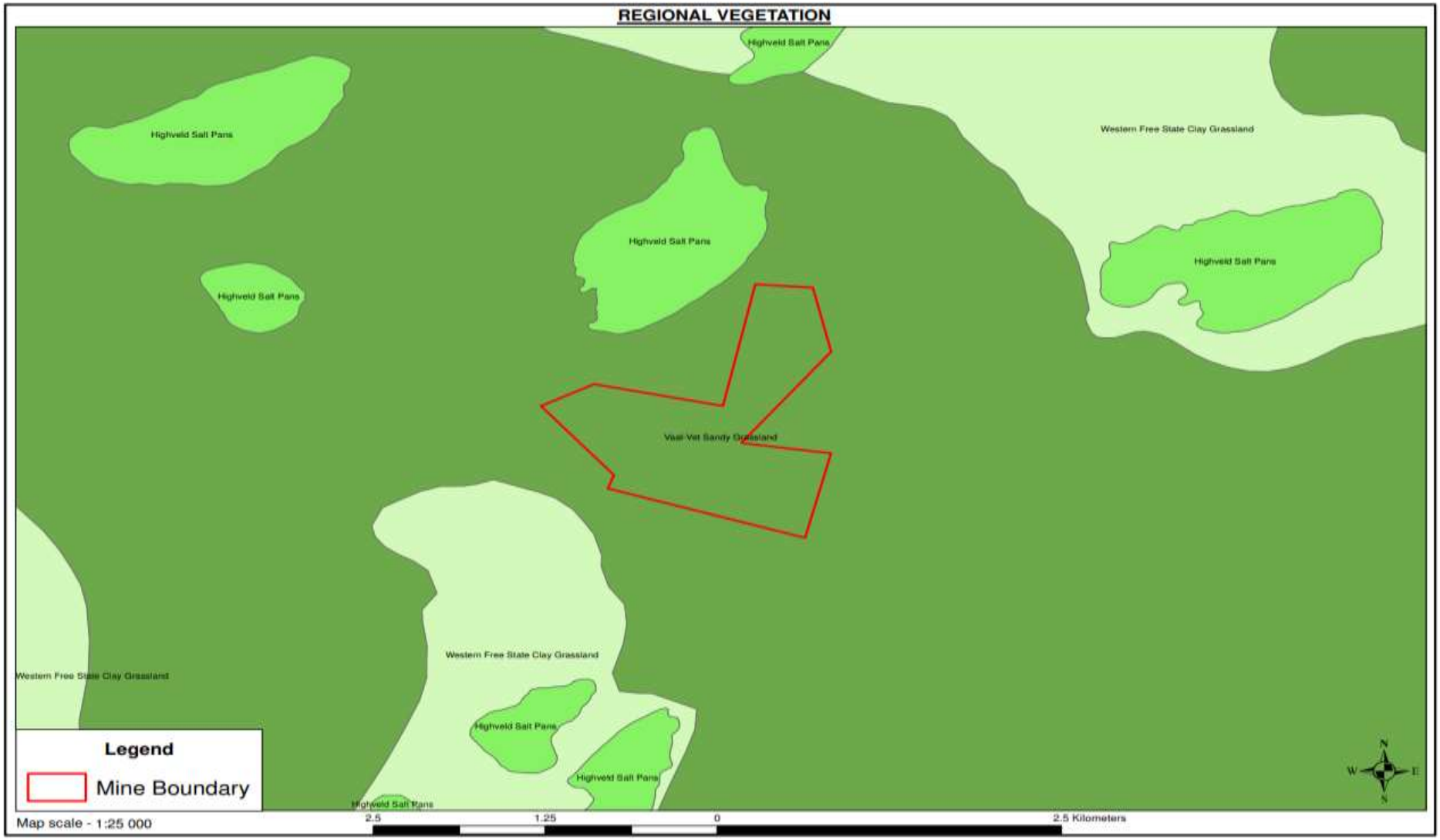


Figure 7. *Regional Vegetation New Elands*

viii) Surface Water (and Wetlands)

Surface water quantity

Numerous pans in the vicinity constitute the only perennial or seasonal surface water on or near the site. The northern-most section of the site is represented by the southern half of a pan, approximately 1km in diameter.

The open pits contain water in the rainfall season as a result of surface runoff and there is some silt in the pits which supports the growth of reeds.

Flood peaks and volumes are not applicable as the claims area is situated away from any perennial watercourse. No river diversions will be required.

Surface water quality

Surface water quality has not been determined as currently there is no water to sample and the natural pan to the north, outside of the mining area, was never impacted by the mining activities in the past, and highly unlikely to be impacted in the future.

Drainage density

No drainage areas outside of the claims area are likely to be affected as the required infrastructure will be rebuilt on previously disturbed land. The drainage of storm water diversions around the blast hole excavations, the tailings and slimes dam area will have to be relooked at for either closure or planning for the reopening of the mine. The only signs of erosion on the site are on the coarse tailings dumps and in the tailings that were deposited in the North pipe pit.

Surface water use

Some of the pans in the area, including the one on the site, are used for agricultural purposes, and a few small dams have been built adjacent to these pans for irrigation and stock watering. The mine and associated infrastructure as well as the residue dumps are situated in the southern part of the site and will not affect the pan in the north. Consequently, no surface water users in the area will be affected.

Water authority

The provincial department of Water Affairs and Sanitation has authority over all underground and surface water resources. Boshof and Dealesville fall within the Lower Vaal Management Area.

Wetlands

As discussed above, a pan is situated on the northern part of the site. No other wetlands occur on the site.

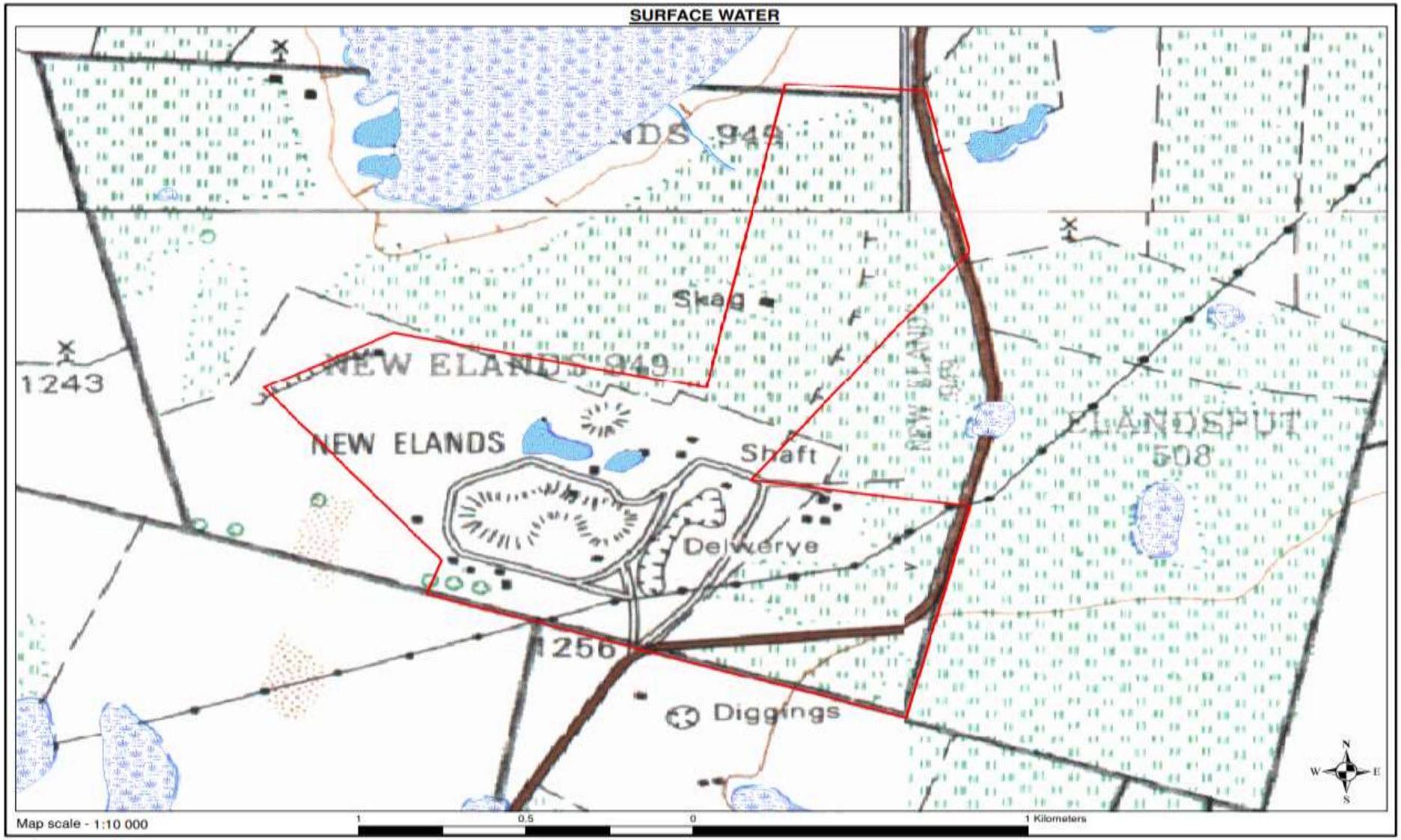


Figure 8. Surface water map

ix) Ground Water

The area under investigation is characterised by typical Karoo-fractures aquifers, which are the most extensive type of aquifer present in South Africa. The Karoo aquifers occur within the so-called Karoo Supergroup which consist mainly of sandstone, mudstone, shale and siltstone.

Water table depth

No formal Hydrogeological assessment has been undertaken to determine the ground water regime, but it may be assumed that permanent water would occur at 25 to 30m, which is the level of water in the borehole on the New Elands site at the moment.

Water boreholes and springs

No natural springs occur on the site. There are three boreholes on the farm outside of the mining area; one apparently is sited on a strong aquifer. These borehole water levels are sited at approximately 20m.

Ground water quality

A water quality sample taken in 2002 from the borehole on the New Elands site reported that the Sodium and Sulphate levels slightly exceeded first class drinking water standards.

The water quality is good in the area with widespread problems with hardness. The electrical conductivity is a good indication of the total dissolved salts in the groundwater.

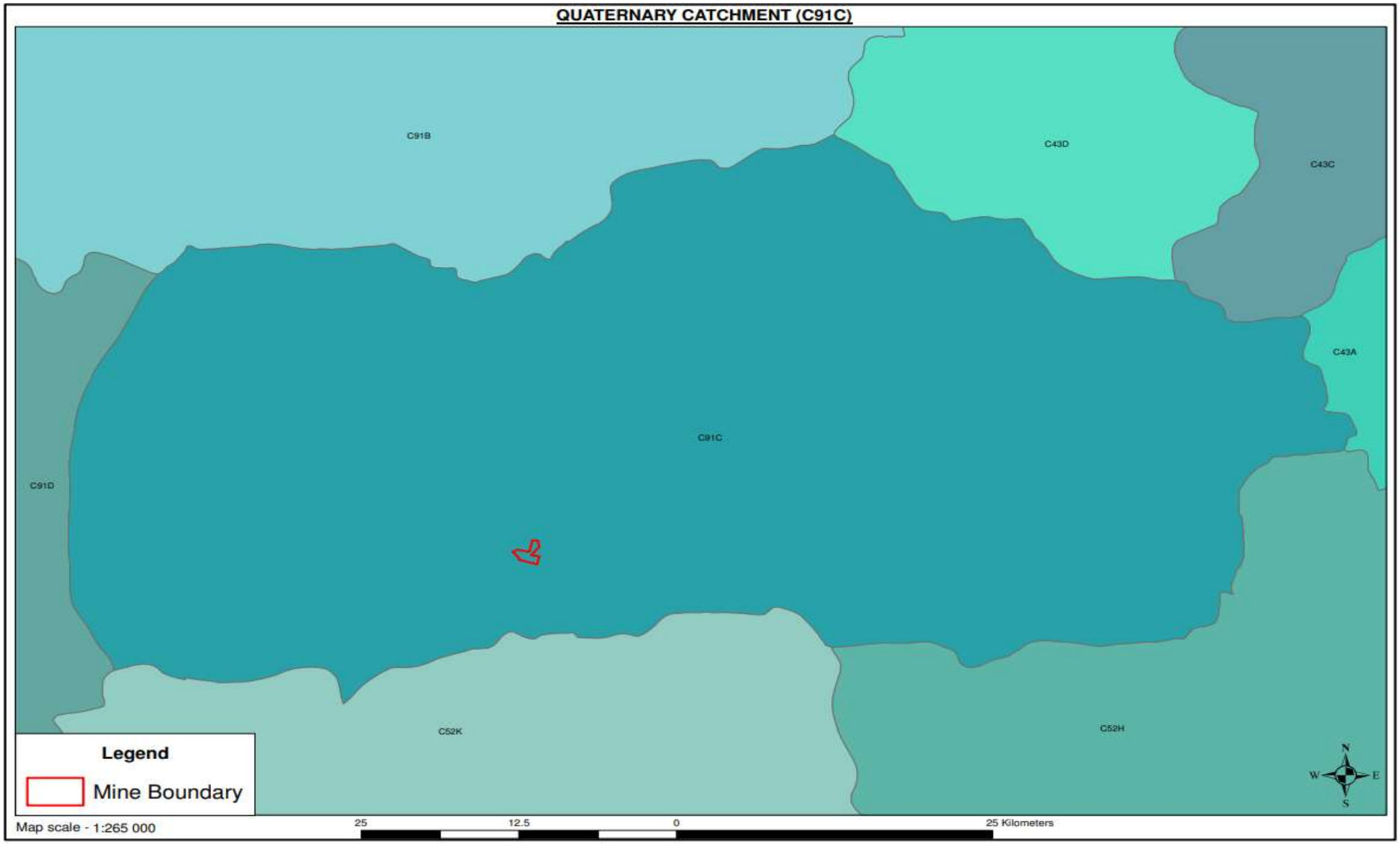


Figure 9. Quaternary catchment (C91C)

x) Cultural and Heritage Resources

The underground mine was in operation for many years and the impacts on heritage resources in these underground areas will probably not be determined. According to Van Riet (2002) no artefacts were found on the surface of the mining area in 2002. The mine and associated infrastructure will be located on the previously disturbed claims area.

It is therefore not deemed necessary to undertake an archaeological survey unless excavations reveal significant finds during the course of the mining operation.

xi) Air Quality

There is no air pollution aspect at new Elands Mine at the moment. The area has seen good rains over the last few seasons and the tailings dumps and the slimes dam are well covered with vegetation to prevent dust generation. The roads in the mining are used infrequently and there is no processing of ore or tailings which are the dust generating activities.

It is not anticipated that any future mine operations will cause significant amounts of atmospheric pollution. The diamond extraction process is a wet process and once crushed the material is loaded and conveyed whilst it is wet. The coarse tailings are stockpiled but generally do not generate dust. The slimes dams are normally wet and retain moisture for a long time.

Once slimes dams dry out they can generate a significant amount of dust due to the fact that the surface area is large, the dams are made up of very fine, clay like material, which when dry will be subjected to prevailing wind erosion.

The slimes dam walls have become vegetated through natural succession of pioneer plants over the years, and will be included in a full rehabilitation programme once the future of the mine is determined.

Most of the old operational areas are now covered by vegetation and where the cover is sub minimal the correct rehab procedure will be implemented.

The areas surrounding the New Elands mine are characterised mostly by farming and some mining activities.

Ploughing and harvesting of croplands are a seasonal source of dust, especially during the dry years.

The Zoet and Zuur Diamond Mine directly to the south, and the Rovic mine to the east are no longer in operation and thus currently not a source of dust. Blaauwbosch mine to the far south is operational and may be a source of dust in the dry season.

The mine is non-operational and therefore does not generate dust. Currently the tailings dumps and slimes dams are well covered with grass and other plants and therefore they are not currently a source of dust.

xii) Noise

Currently this is not an issue but if operations commence the presence of vehicles and construction facilities and structures will generate noise.
Noise generated from the underground mining operation will not impact on surface, although there may be some land vibration with blasting. The vibration or earth tremor experienced should be small as the mining operation is a small one.

Surface noise may be created by an extractor fan and the plant operations and earth moving vehicles. This noise will be limited to site but a perimeter noise survey will be conducted once the operation is in full production.

At the moment there is no noise associated with mining or mineral processing.

xiii) Visual Aspects

The remaining visual impacts of the mine are closely related to the change in topography and not to the construction of any structures at this stage. Since 2011 the infrastructure such as the hoist, headgear and all components of the plant were dismantled and removed. The shafts were closed and sealed with a concrete slab initially and later the concrete was removed and replaced with a steel plate and fence.

Structures built and / or renovated specifically for mining purposes, such as the workshop, explosive magazines, wash bays, vehicle maintenance yards, salvage yards and waste disposal sites were removed. Final backfilling/ shaping of the trenches, the storage dam, tailings dumps and slimes dams have not been done. All the above areas are partially rehabilitated and over the years have become re-vegetated.

The mine dumps are not visible from any public road and they will be profiled, and rehabilitated with the closure of the mine. The mine is located well away from tourist routes, scenic areas and residential areas. The secluded nature of the site as well as the limited infrastructure implies that the visual impact will be small despite the flat topography. The mine is no longer visible from the R64. No headgear is left on site.

xiv) Socio-Economic Structure of the Region

The following socio-economic information was acquired from Integrated Development Plan (IDP) of the Lejweleputswa District Municipality for the period of 2017-2022.

Lejweleputswa District Municipality has been established in terms of section 14 of the Local Government: Municipal Structures Act, Act No 117 of 1998 and was published in the Provincial Gazette No 109 dated 28 September 2000 and came into

being on 06 December 2000. The district is one of the four district municipalities in the Free State. The other three are; Thabo Mofutsanyane in the north east; Fezile Dabi in the north as well as Xhariep in the south east. There is one Metropolitan municipality, Mangaung, which is located in south east. The area of jurisdiction of Lejweleputswa District Municipality includes the following five municipalities:

- Masilonyana
- Tokologo
- Tswelopele
- Matjhabeng
- Nala

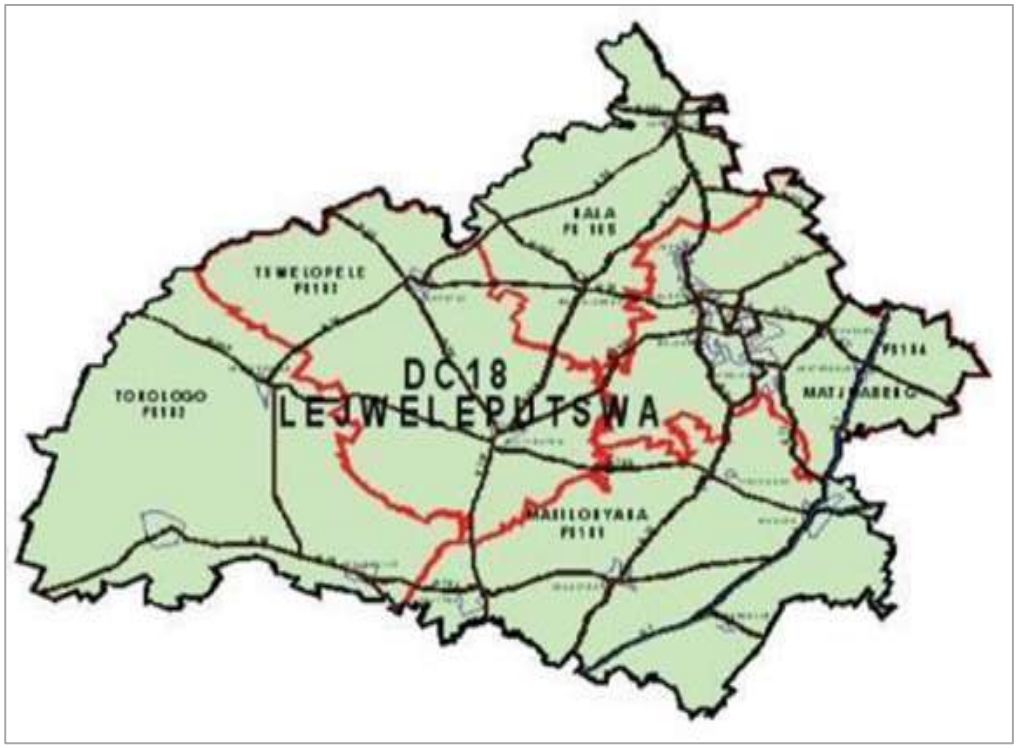


Figure 10: Lejweleputswa District.

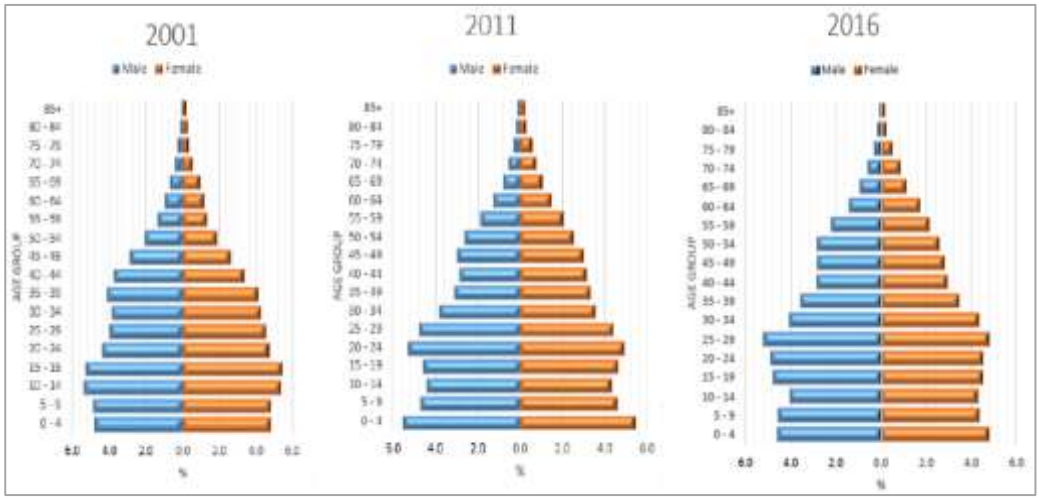
Population density, growth and location

The population within the district has decreased 657 012 in 2001 to 627 626 in 2011 (Table 7). The decrease is much more pronounced over a ten year period in municipalities such as Nala, Tswelopele and Tokologo Local Municipalities respectively with Nala being the district with the greatest decrease. The community survey conducted in 2016 indicated a slight increase in the population (649 964) from 2011 (627 626) however, the number is still lower than that op 2001. population of the Lejweleputswa now constitute 22, 8% of the entire Free State population.

Table 7: Population of the Lejweleputswa Municipality for 2001,2011 and 2016.

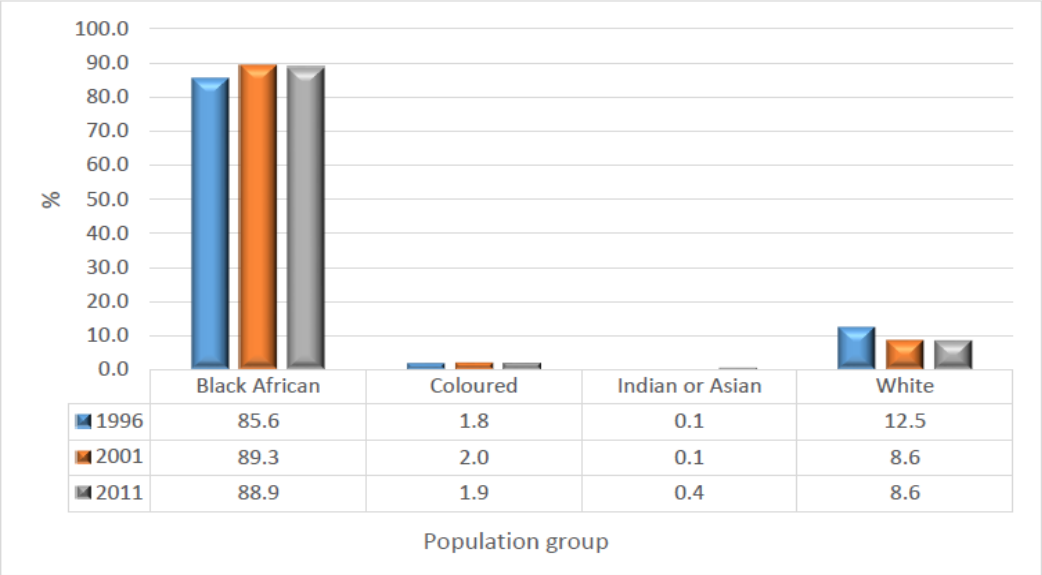
DEMOGRAPHICS			CS
Population	2001	2011	2016
South Africa	44819777	51770561	
Free State	2706771	2745590	2 834 714
DC18: Lejweleputswa	657012	627626	649964
FS181: Masilonyana	64409	63334	66084
FS182: Tokologo	32455	28986	29149
FS183: Tswelopele	53714	47625	47373
FS184: Matjhabeng	408170	406461	428843
FS185: Nala	98264	81220	78515

As seen in Graph 1 below the majority of the population is between the ages 18-35 indicating that the population is young and energetic and therefore the provision of employment opportunities is crucial. There was also an increase in the percentage of children being born between 2001 and 2011, it however appears that the number of infants being born slightly decreased up to 2016. The increase in the number of infants and toddlers can be attributed to the MTC transmission medication being made available to pregnant mothers.



Graph 1: Population distribution by age and gender (Sources: Stats SA: Census, 2011 and Community Survey 2016).

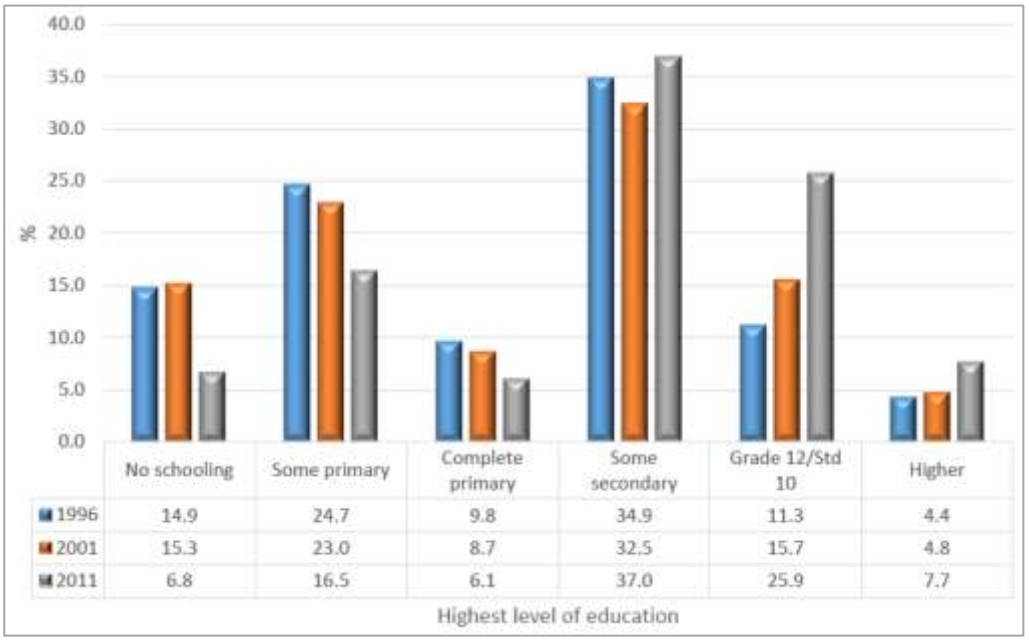
The majority of the population in the Lejweleputswa District has always been black African for the 15-year period with a small difference over the period ranging from 82.2% in 1996 to 77.0% in 2011, followed by white population group with 22, 0% in 1996 to 20, 2% in 2011 and the third being coloured population with 5, 0% in 1996 to 5, 2% in 2011.



Graph 2: Percentage distribution of Lejweleputswa population by population group, 1996-2011. (Source: Stats SA: Census, 2011).

Education and Employment

The education system has shown steady improvement in encouraging learners to pass matric to enter tertiary education. The graph above is illustration of the state of education in the district. For instance, people who reported that they are not attending school have decreased over the 20 year period to 4.3% from 10.1% in 1996. The picture shows improvement in matriculation status as is the case with higher education from an 8.2% in 1996 to 13.8% in 2011.

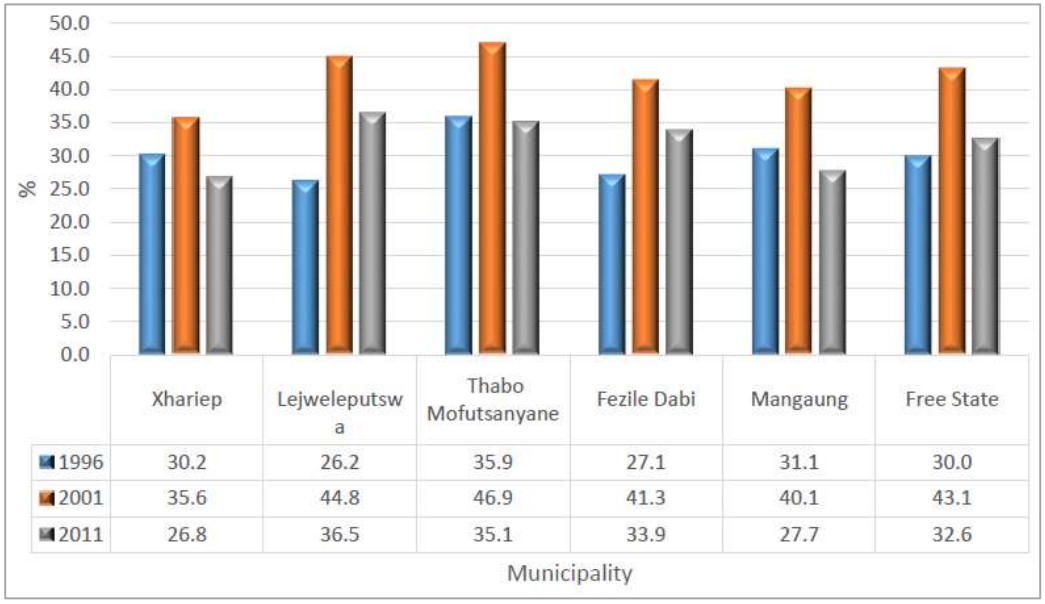


Graph 3: Population Aged 20+ by Highest Level of Education, Lejweleputswa, 1996-2011.

The table above depicts the official employment status by population group and gender in the Lejweleputswa District, with black African male being the highest with

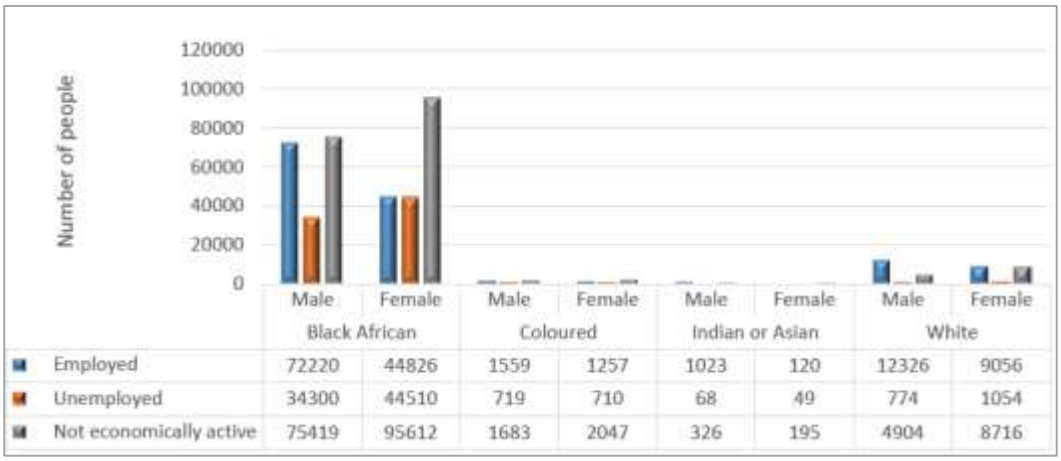
72220 employed followed by African female at 44826, and white males with 12326 employed, and white females at 9056, male coloured at 1559 and coloured female at 1257. The Indian, male employment is at 1023 while female Indians is 120.

The district is one of the worst municipalities with highest rate of unemployment in the Free State province in the 2011 census. It is standing at 36.5%. Although the picture for all municipalities is not satisfying, in the Free State, Lejweleputswa has the highest numbers of unemployment. This must be attributed partly to mining closures. The revival of the district agency must be to establish some form employment opportunities in the district. Mining closures do not help the situation either. There must be strategies used by local economic development agencies to steer the employment in the right direction. Efforts must be to engage youth to establish sustainable enterprises. The unemployment of Black African male is 34300, and Black African female is 44510. The White male unemployment is standing at 774 and White female the rate of unemployment is at 1054. The Coloured male unemployment is at 719 and the Coloured female is 710. The Indian male is 68 and Indian female is at 49.
It is quite clear that the Black African population group is the most affected both males and females and the district should focus on creating more employment opportunities to significantly reduce the rate of unemployment from 36, 5% to 5% by 2030.



	Xhariep	Lejweleputswa	Thabo Mofutsanyane	Fezile Dabi	Mangaung	Free State
1996	30.2	26.2	35.9	27.1	31.1	30.0
2001	35.6	44.8	46.9	41.3	40.1	43.1
2011	26.8	36.5	35.1	33.9	27.7	32.6

Graph 4: Unemployment Rates (Official Definition) of Free State Municipalities, 1996-2011.



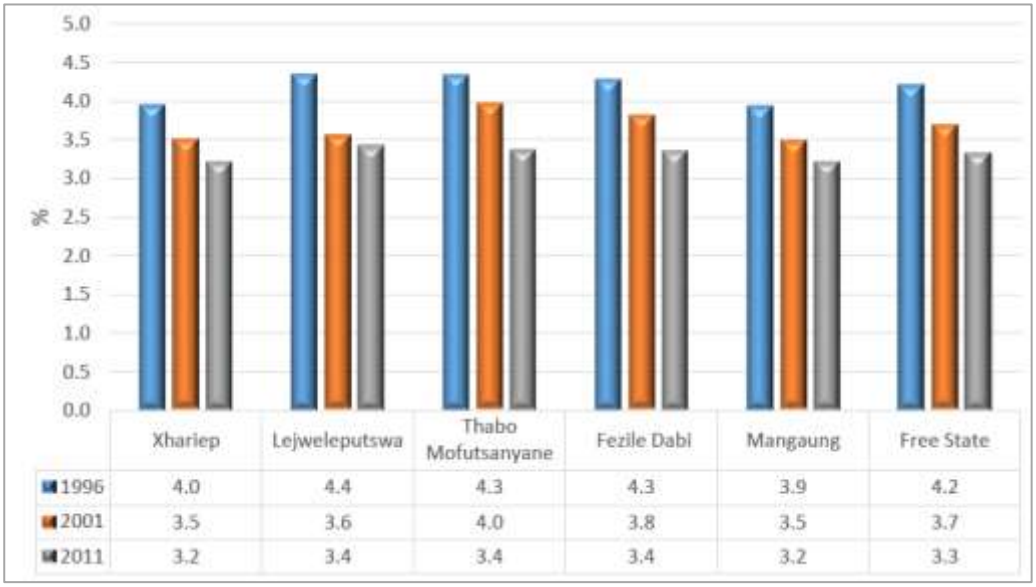
	Male	Female	Male	Female	Male	Female	Male	Female
	Black African		Coloured		Indian or Asian		White	
Employed	72220	44826	1559	1257	1023	120	12326	9056
Unemployed	34300	44510	719	710	68	49	774	1054
Not economically active	75419	95612	1683	2047	326	195	4904	8716

Graph 5: Official Employment Status by Population Group and Gender in Lejweleputswa.

Housing

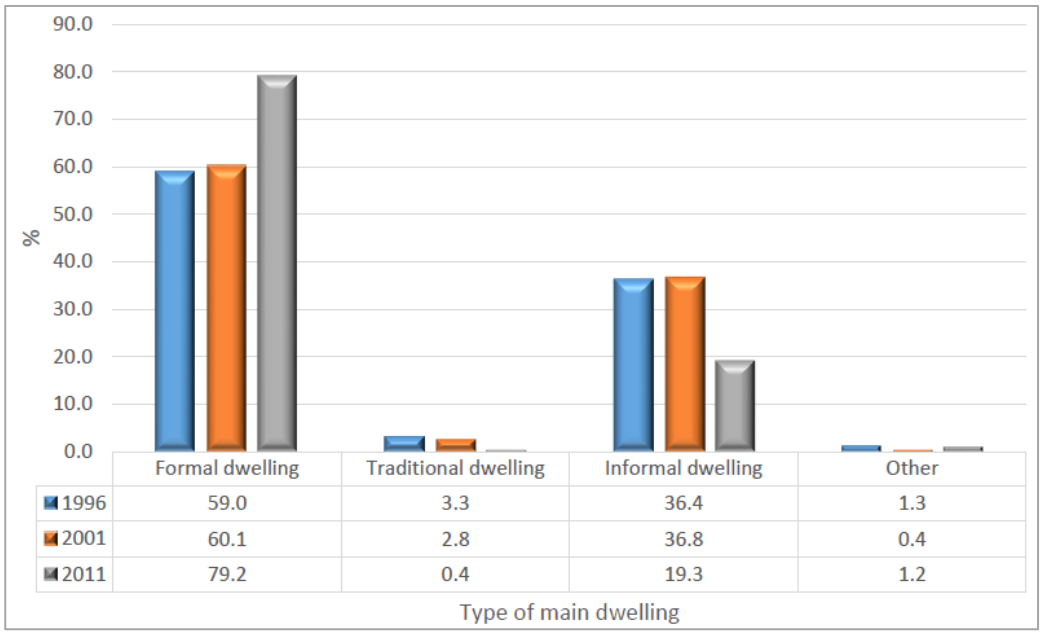
The average household size of people living in the district has always been lower than that of the province. In 1996, the average household size of population in the district has been 3, 8% compared with that of the province which was at 4,0% for the same period. The picture is somewhat the same 20 years later with the district at 3, 3% whereas the provincial figures stood at 3, 4%. This decline could be interpreted to mean that young adults move out of their parents' homes to establish own homes in the forms of shacks in other places or have successfully lined up to get own RDP houses. This is the part that government needs to comprehend and act decisively on because there is a need for increased basic services everywhere.

The percentage of the population living in formal dwellings has steadily increased from 1996 to 2011 with 59% living in formal dwellings in 1996 compared to 79.2% in 2011. The percentage of the population living in traditional and informal dwellings has decreased over the same time period (Graph 4).



	Xhariep	Lejweleputswa	Thabo Mofutsanyane	Fezile Dabi	Mangaung	Free State
1996	4.0	4.4	4.3	4.3	3.9	4.2
2001	3.5	3.6	4.0	3.8	3.5	3.7
2011	3.2	3.4	3.4	3.4	3.2	3.3

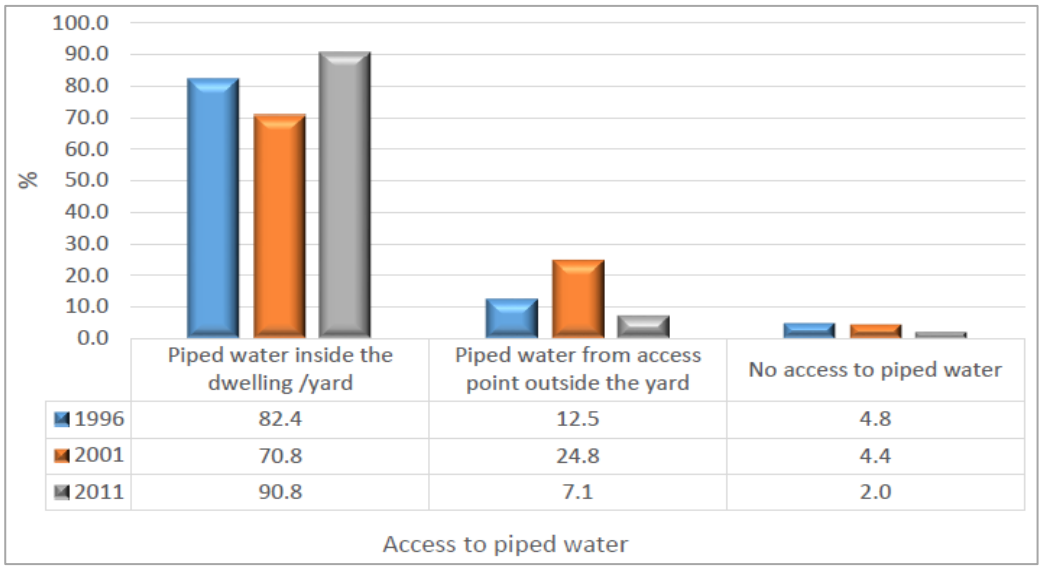
Graph 6: Average household sizes for Free State Municipalities, 1996-2011.



Graph 7: Distribution of households in the Lejweleputswa Municipality by type of main dwelling, 1996-2011.

Water supply

There has been increased in the provision of piped water since 1996 from 65.7% to 86.7&% in 2011. Piped water provision has an impact on the provision of drinking through avenues like communal stand pipes. The table shows a comprehensive picture whilst there was increased provision of piped water, there was also a decrease in the number of people who report to source their water elsewhere other than in piped water. People who indicated that they do not have access to piped water have decreased from the 1996 figures of 2.6% to 2.1% in 2011. People who indicated that they access water through communal stand pipes have decreased from 31.7% in 1996 to 11.2% in 2011. The 13.3% of people who do not have access to piped water still require improvement in the water service in the district.



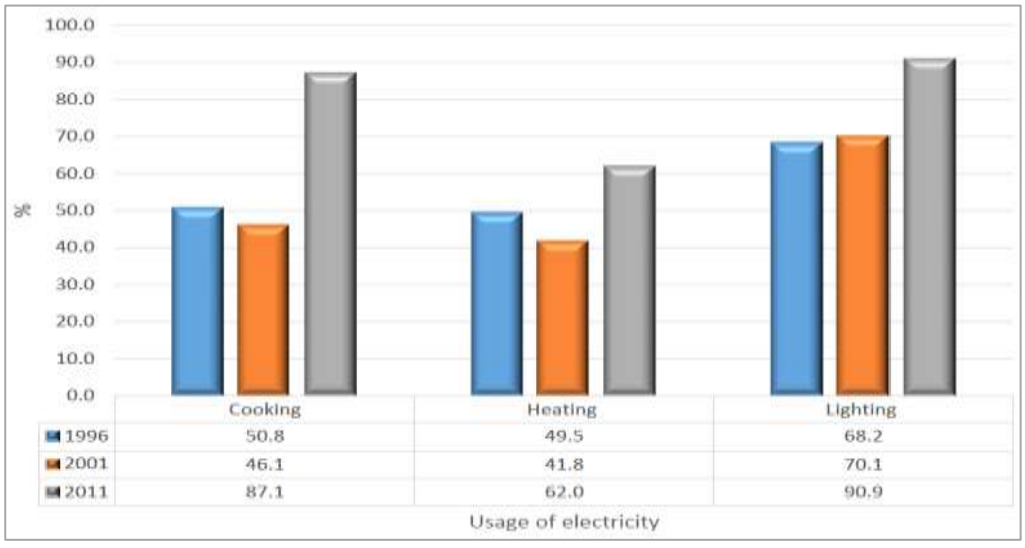
Graph 8: Distribution of households by access to water, 1996-2011.

Table 8: Main drinking water source.

Province, District and local Municipality	Main source of drinking water.													
	Piped (tap) water inside the dwelling/house	Piped (tap) water inside the yard	Piped water on community stand	Borehole in the yard	Rainwater tank in the yard	Neighbours tap	Public/communal tap Water carrier/tanker	Watercarrier/tanker	Boreholes outside the yard	Flowing water/stream/river	Well	Spring	Other	Total
Free State	357926	499067	25768	8098	694	13142	14680	11226	8548	1124	411	1108	4848	946638
DC 18: Lejweleputswa	94736	107755	3354	2012	149	302	2949	374	2119	129	-	83	2332	219014
FS 181: Masilonyana	5730	15246	63	224	-	264	66	75	270	-	-	-	863	22802
FS 182: Tokologo	788	7364	12	538	17	306	343	31	432	-	-	-	-	9831
FS 183: Tswelopele	1716	10685	121	326	30	165	36	230	204	95	-	-	96	13705
FS 184: Matjhabeng	79509	60157	2450	678	102	2188	2003	38	574	34	-	15	1274	149021
FS 185: Nala	6992	14303	708	246	-	98	502	-	639	-	-	68	98	23653

Power

It has become known that people have been using electricity for lighting more than cooking and heating. The figures below are an illustration of this point. The % of using electricity for lighting has staggered upwards from 61.6% in 1996 to 91.4% in 2011. It is also interesting though that electricity has also been preferred of late for cooking purposes with 88.5% of the population using it for cooking. Urbanization could have been the factor for families to now use electricity than other forms of energy to cook. We know that there were other forms of methods used in the past to prepare fire than to use electricity because at the earlier times, electricity was not accessible to the majority of the people.

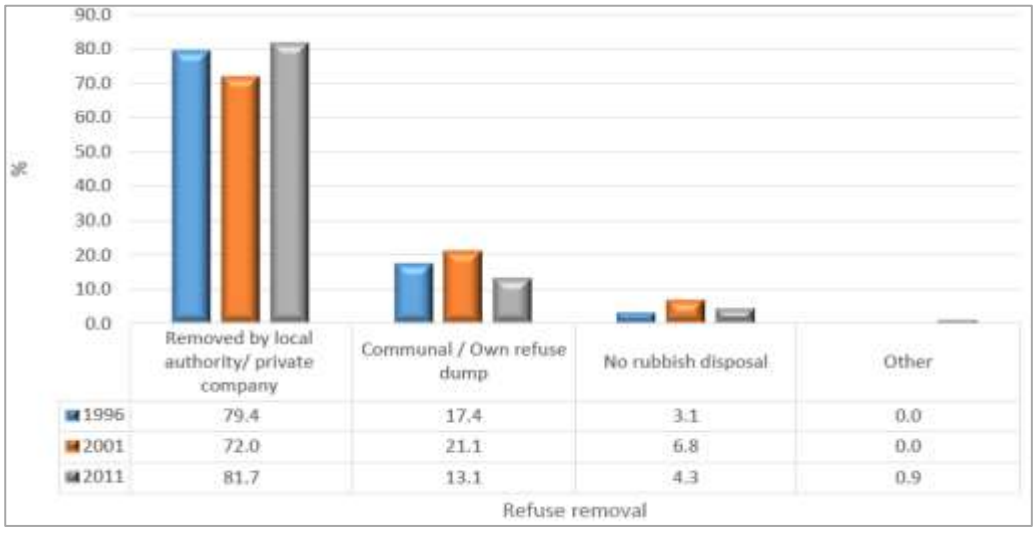


Graph 9: Distribution of Households Using Electricity, Lighting, Cooking and Heating, Lejweleputswa, 1996-2011.

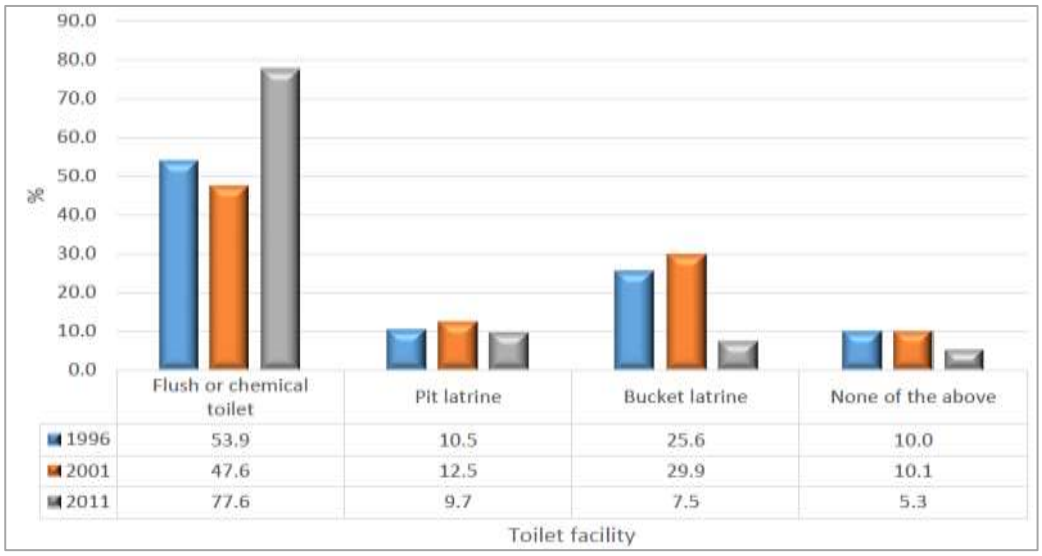
Refuse removal and Toilet Facilities

The role of local municipality playing a pronounced role in removing refuse has improved from 70,5% in 1996 to 81,8% in 2011.The Local and private company roles have ensured that refuse removal is speeded up. There are challenges though where we still have communities dumping own refuse. In this case municipalities have resorted to by-laws that are intended to discourage such behaviours. In this district in particular, there was a decrease in instances where communities dump own refuse from 18.1% in 1996 to only 14.7% in 2011. This remains one of the areas of concerns in order to quell rampant infiltration by rat family. The area of Welkom is known for rodent infestation for some time now quick and improved service regarding refuse removal would play a key role in ensuring that infestation is kept to a minimum.

There have been improvements in ridding ourselves of the backward forms of toilet facilities from especially that of buckets to flush and in some instances, the chemical toilets. In some areas where there were no toilets at all, pit latrines were recommended as temporary measure. The figures above paint a promising picture though that we are working towards eradication of all forms of backward toilet facilities to more modern and acceptable forms. The number of people who have access to flush/chemical toilets increased from 53, 9% in 1996 to 79, 2% in 2011 and those using pit latrines decreased from 10, 5% in 1996 to 9, 9% in 2011. The backlog of bucket system was reduced from 25,6% in 1996 to 7,6% in 2011 and those who do not have access to any form of toilets was decreased from 10,0% in 1996 to 3,3% in 2011. There is still some way to traverse the challenges though.



Graph 10: Distribution of Households by Type of Refuse Disposal, Lejweleputswa, 1996-2011.



Graph 11: Distribution of Households by Type of Toilet Facilities, Lejweleputswa, 1996-2011.

xv) Sensitive landscapes

The National Water Act (No. 36 of 1998) states that no residue deposit, stockpile etc., may be located within 100m of the pan's high-water level. No other landscapes under statutory protection occur on the property, but the slightly erodible nature of the Askham soils is of some concern.

4. Environmental Audit

(environmental audit of the site, details of the results of the environmental audit and details of identified residual and latent impacts)

This section will evaluate the degree of compliance outlined in the EMPr to the evidence obtained during the site visit. Sections of the EMPr relevant to the site, evaluated and degree of compliance noted.

It can be expected that the risk of long-term liabilities after closure will be low. This Audit Report have been compiled utilizing the guidelines for financial provision (DMR guidelines 2005).

Compliance with the provisions of the environmental authorisation approved EMPlan and where applicable the approved closure plan will be evaluated against the actual situation on the site on the day of the site visits, where-after mitigation measures are proposed.

A follow up site visit will be done to assess the progress and level of compliance to mitigation measures and where deviations still occur, a commitment and target date will be reflected as obtained from the mine manager.

Environmental Audit Results

An environmental audit was conducted on December 2021 to evaluate the compliance of the mine with regards to the approved EA and EMPlan. The mine was not operational during the

site visit as the mine is operating under care and maintenance since 2011. The environmental audit is attached to this document as Appendix 3. The most significant deviations are indicated and discussed below.

Significance levels of the Audit Findings:

Significance Level	Environmental Impact
0	Currently causing an Environmental Impact and needs immediate intervention
1	Observation which relates to a matter about which the Assessor is concerned but cannot be clearly stated as a non-compliance. Observation also indicate trends which may result in a future non-compliance
2	Has potential to cause an environmental effect or result in non-compliance or is noncompliant with EMP and permit requirements, policies or standards
3	In compliance and current measures must be maintained or improved

SUMMARY OF AUDIT FINDINGS RECORDED UNDER PARAGRAPH 10.3

For ease of tracking the reference numbers of the management measures found to have a "0" rating" **(meaning that it is currently having an Environmental impact and needs immediate intervention**) are reflecting in the first column.

NR	EMP Measure and Standard	Audit Finding	Mitigation measure/ Recommendation	Significance Level
54	Institute a programme of plant species invasion control. *Prosopis* trees must be targeted first. This should be by mechanical and manual methods rather than chemical.	Non-Compliant	During the site inspection it was observed that there is *Prosopis* trees. It is recommended that the mine pinpoint the target areas and start an eradication programme to control these invaders.	o
55	A plan demarcating all areas and species of alien plants must be compiled.	Non-Compliant	No plan demarcating alien plant species could be presented by the mine	o
56	An integrated pest plant removal programme must be initiated as soon as possible.	Non-compliant	No pest plant removal programme could be provided by the mine. It is recommended that the mine pays attention to the removal programme as these help with the self-manifestation of the natural plant species.	o
60	The Torch cactus should be manually chopped down or bulldozed out and stacked in heaps so that the cladodes are unable to put down roots.	Non-compliant	The torch cactus is not being removed. It is recommended that the mine identify all the areas and start removing them as soon as possible	o
63	Pull out the small plants under the parent tree when the ground is wet after rainfall where possible.	Non-compliant	There are no employees on site, it is recommended that the management visit the site frequently to remove small plants after rainfall events.	o
74	Follow up on pest plant eradication annually, some of them are very difficult to remove with any one method, and a combination of methods is often more successful.	Non-Compliant	No Pest plant eradication is currently being conducted by the mine. It is recommended that the mine follow up on this measure annually as most of the invaders does not die with one method only.	o
86	Maintain water storage dams.	Non-Compliant	The water storage dam located close to the office area are being used to store building rubble. It is recommended that the building rubble is removed from site and the dam be restored for future purposes.	o

98	Draw up and implement a ground water monitoring programme which will include locating representative boreholes for quality and water level monitoring on surrounding farms. The sampling and water level determination of existing boreholes within the mining area must be conducted regularly.	Non-compliant	No ground water monitoring could be provided during the audit. It is recommended that the mine construct a ground water monitoring programme to locate representative boreholes for quality and water level monitoring, and conduct sampling of boreholes within the mining area.	0
105	Draw up a programme of ground water monitoring which will include locating representative boreholes and sampling existing boreholes within and surrounding the area.	Non-Compliant	No ground water monitoring programme has been implemented by the mine. It is recommended that the mine implement this measure as soon as possible, to get an indication of the water quality, to locate boreholes easily and to comply to the EMP measure.	0
129	Ensure that the EMP performance assessment report is submitted to the authorities when necessary. This is every two years or as otherwise decided by the authority.	Non-Compliant	No record of the EMP performance assessment report could be provided on the day of the audit inspection.	0

The table reflected above is an extract of the most important deviations found during the Environmental Audit and all aspects of non-compliance should be addressed even if they have a level 2 or 1 significance because if they are not addressed it may progress to a level 0 significance should mitigation measures not be implemented.

The aspects rated less than 3 in the level of significance needs to be resolved as soon as possible, which is definitely achievable in a short period of time as most of the rehabilitation, pollution control and management measures can be implemented and rectified immediately.

Kophia Diamonds (Pty) Ltd has been assessed in terms of their **2018 December approved Environmental Management Programme** and have been found to **be 71% (170/240) compliant** with the current relevant/ applicable aspects and mitigation measures for their **2021 Annual Environmental Audit**

Recommendations on how and when non-compliance and deficiencies will be rectified:

1. Care must be taken that no activities are undertaken on the site which is not included in the current Environmental Authorisation with specific reference to vegetation clearance, roads, power lines, diesel storage.
2. The Right Holder was also made aware during the on-site inspection to keep a copy of the approved Environmental Management Programme on site, as this is a requirement and mine management should utilize the document to implement the mitigation measures as prescribed by the approved document. Other documents such as the approved Mining Right, Mining Work Programme, Water Use Licence as well as the latest audit reports must be provided to the relevant authorities during site inspections and should be neatly filed accordingly.
3. All deviations must be assessed and an action plan for remediation must be developed with timeframes for mitigation.
4. Rights Holder management must develop systems where possible to ensure that employees and responsible persons adhere and implement the measure contained in the approved EIA/EMP. Although regular daily briefings are conducted, these should be more formalized and reported/summarized.

Residual and Latent Impacts

The residual impacts after closure are on the geology in terms of the actual underground mine and blast holes. The shafts will be fenced off and secured, but the underground series of shafts and tunnels will remain a concern for collapses and subsidence, as well as constituting a physical danger to humans and livestock.

The residual impacts include:

- The blast hole constitutes a physical danger to humans and livestock.
- The slopes of the blast hole will continue to erode and break back will occur over time.
- Slimes dams, which occupy land, alter topography and potentially degrade the surrounding soil and water quality.
- Tailings dumps, which occupy land, alter the topography and potentially degrade surrounding soil and water quality.
- Potential lack of stability of rehabilitated ground and residue deposits, the possibility of erosion would have to be monitored and handled.
- The potential for the appearance of invasive plants and weeds, especially in rehabilitating areas.
- Failure of the rehabilitated area, or parts of it, to vegetate.
- The water in the underground workings has flooded the tunnels, and there is the possibility that the groundwater has been contaminated with kimberlite saline residue seepage. The kimberlite residues weather to produce saline seepage which impacts on the topsoil layers of the footprints of residue dumps. The groundwater may also be impacted by the saline seepage and weathering of ore from the underground workings and residue deposits and dams.

5. Care and Maintenance Programme

(Detailing management of the environmental risks associated with mining activities and its implementation thereof).

5.1 Environmental Risks

Since 2011 the infrastructure such as the hoist, headgear and all components of the plant were dismantled and removed. The shafts were closed and sealed with a concrete slab initially and later the concrete was removed and replaced with a steel plate and fence.

Structures built and / or renovated specifically for mining purposes, such as the workshop, explosive magazines, wash bays, vehicle maintenance yards, salvage yards and waste disposal sites were removed. Final backfilling/ shaping of the trenches, the storage dam, tailings dumps and slimes dams have not been done. All the above areas are partially rehabilitated and over the years have become re-vegetated.

Risks

- Permanent visual impact of tailings, slimes dams and the storage dam.
- Visual impact of areas where demolition has occurred
- Pollution of the soil profile by waste, spillages and residue seepage
- Erosion of slopes, especially those that have not yet vegetated
- Disruption to natural surface drainage
- The underground series of shafts and tunnels will remain a concern for collapses and subsidence, which could constitute a physical danger to humans and livestock.
- The water in the underground workings has flooded the tunnels, and there is the possibility that the groundwater has been contaminated with kimberlite saline residue seepage. The kimberlite residues weather to produce saline seepage which impacts on the topsoil layers of the footprints of residue dumps. The groundwater may also be impacted by the saline seepage and weathering of ore from the underground workings and residue deposits and dams.

5.2 Management Measures and Implementation

5.2.1 Tailings dams and Water Storage dams

- Profile the tailings dumps and the slimes dams (initially with slope gradients of 45°) to have slopes not exceeding 18° and revegetate. Retain all necessary drain systems to control seepage from the slimes dam
- Doze a wall along the top edge of the tailings dump to stop rainwater running down the sides and causing erosion.
- Rehabilitate and vegetate the slimes dams to a minimum cover of 50%. If the cover is less than this, a suitable program must be implemented to achieve the required 50% coverage. This program will include the addition of fertiliser and an appropriate rate and seeding.
- Backfill/level the storage dam as well as stormwater trenches, toe trenches and other excavations.
- Compacted redundant French drains and cover these with a final layer of topsoil to a height of 10cm above the surrounding ground surface.

- Remove all waste material of all descriptions inclusive of receptacles, scrap, rubble and tyres entirely from the mining area and dispose of at a suitable waste disposal facility.
- Remove all contaminated soil associated with the above waste and disposal sited and dispose of at a suitable waste disposal facility.
- No waste will be burned or buried on the site.
- Reshape areas where demolition and excavation has taken place to control surface water drainage.
- Self-sustaining vegetation will result in the control of erosion and dust.

Long-term stability of any environment where underground mining activity has taken place cannot be guaranteed. In this regard no new developments will be allowed above the mined areas.

5.2.2 Underground infrastructure

- Current thinking is that all infrastructure with no future use or resale value and most of the structures will be removed/demolished.
- Once all items of value have been removed from underground, the shafts will be closed and sealed in order to prevent access. It is unlikely that they will be filled, in all probability mitigation/management will make provision for fencing off these areas. The advice of the mine safety inspectors will be sought and their requirements adhered to.
- Stormwater channels will be excavated on the surface to ensure that the shaft and plant areas remain reasonably dry in the event of heavy downpours.
- The claims area will be fenced off.

5.2.3 Ramps, roads and voids

- Should subsidence or voids occur, these will be filled with kimberlite tailings or a suitable security fence will be erected around the opening should backfilling prove impractical (such actions will be determined in consultation with the mine safety inspectorate, and guidelines addressing such issues obtained).
- Dangerous excavations will be fenced off with appropriate danger signs displayed conspicuously on the fencing.
- Remove all non-natural material used for the construction of roads and ramps that could hamper the re-vegetation of these areas.
- All roads will be ripped or ploughed, fertilised and seeded, providing the new landowner does not want them to remain.

5.2.4 Emergency Response

An emergency response plan must be developed and implemented, with clear lines of communication identified. If monitoring results reveal adverse findings that could cause serious environmental degradation they must be dealt with rapidly and effectively. The emergency response plan should cater for the worst-case scenario to ensure minimum injury and damage during a catastrophic event.

6. Closure Monitoring and Maintenance Framework

(Appropriate detail on closure performance monitoring and maintenance framework during progressive rehabilitation and post closure, including the methodology, quality control system and remedial strategy).

6.1 Closure Objectives

The primary objective is to obtain a closure certificate at the end of the life of mine at minimum cost and in as short a time period as possible whilst complying with the requirements of the Mineral and Petroleum Resources Development Act (Act No. 28 of 2002), as amended, as well as the National Environmental Management Amendment Act (Act No. 62 of 2008), as amended.

Closure objectives are required to be implemented by the mine owner/operator to support the closure vision and rehabilitation end result. The objectives for closure include:

- Adhere to all statutory and other legal requirements (National and Local);
- Implement progressive rehabilitation measures where possible to ensure protection of the local environment;
- To develop land-uses that are stable, sustainable and aesthetically acceptable on closure;
- Ensure safety and health of all stakeholders during closure and post closure and that communities using the site after closure are not exposed to unacceptable risks;
- Ensure that closure support productive uses considering pre-mining conditions and are in agreement with commitments with stakeholders;
- Utilize closure strategies that promote a self-sustaining condition with little or no need for ongoing care and maintenance.

6.2 Rehabilitation Programme

Partial closure may be applied for in respect of underground operations prior to the final closure of the surface operations.

Ongoing rehabilitation measures will be applied whilst the mine is still operational in efforts to reduce the cost impact. The following steps will be taken:

- Equipment, structures and buildings that must be disposed of will be identified.
- Once equipment and structures have been removed, demolition and disposal of foundations, concrete works and roads will commence.
- Profiling, landscaping and rehabilitation of old slimes dams and tailings dumps will also be initiated.
- After the demolition and cleaning phase, rehabilitation of the disturbed areas will begin. The re-vegetation of these areas will commence during the phase.
- Ongoing monitoring and audits will be in place to ensure that objectives have been met and that rehabilitation measures have been successful.

6.3 Monitoring and Maintenance

Post decommissioning maintenance will be continued until such a time that closure is approved. These activities are as follows:

- Monitoring of vegetation and progress.
- Monitoring of surface and ground water quality.
- Monitoring of erosion on rehabilitated areas.
- Monitoring of subsidence (tailings dumps, surface outcrop of dyke).
- Monitoring of slimes dam walls

The aim of the environmental management plan is for rehabilitation to be self-sustaining, so that the least possible aftercare is required.

The key objectives of rehabilitation monitoring are to:

- Verify that rehabilitation actions are being done exactly as planned, that they are on time and that their results are as expected;
- Ensure that timeous action can be taken to implement corrective action should the applied rehabilitation actions not have resulted in the desired outcome; and
- Verify that the relinquishment criteria have been met so that the mine can apply for closure.

Table 9: Monitoring and Maintenance Framework.

Source Activities	Rehabilitation objective	Monitoring required	Quality control	Remedial Strategy	Monitoring and Reporting Frequency
Topography	To minimise the reduction of land capability; The area should be stable.	Monitor slope stability; Monitor drainage of sloped areas; Monitor slope angle (18°)	The sloped area should blend in with natural topography of the area; Water should not build up in depressions and should freely drain; No erosion should occur on the rehabilitated slopes.	Slope the area to have an angle of 18°; Rip area and apply seed mix to encourage revegetation to assist with slope stability and erosion problems; Fill depressions and erosion channels that may form during rain events.	Monitoring will be done on an *annual basis* or *after a heavy rain event*, to ensure that the levels and the slopes are in order.
Soil	To prevent soil pollution; To limit soil compaction; To curb soil erosion; To reinstate a growth medium able to sustain plant life.	Monitor soil depth and chemical composition by conducting regular soil tests; Monitor the area for soil erosion.	The physical and chemical characteristics should be relatively the same as to that of the soil prior to mining. No erosion should occur on the rehabilitated area. Revegetation should occur.	Rip soil if compaction occurred; Apply the necessary fertilizers to restore the chemical properties of the soil; Ensure that the area is sloped to decrease the possibility of erosion; Seed the area with a seed mix if revegetation is slow.	Monitoring will be done on an *annual basis* or after a *heavy rain event.*
Air Quality	To control the incidence of unacceptable levels of dust pollution on site.	Monitor dust omissions; Monitor and test dust collected in dust buckets.	Dust omissions should be minimal and dust should not pose a health hazard for the surrounding area.	Manage by doing dust suppression. Ensure that revegetation is taking place.	Visual inspections will be done daily. *Quarterly* tests will also be conducted by a Safety Health and Environmental

					Consultant and submitted to Mine Health and Safety for monitoring purposes.
Fauna	To minimise vegetation destruction in mining areas, and therefore a habitat for wildlife; To eliminate poaching and the extermination of animal species within the boundaries of the study area as well as the surrounding areas.	Monitor species diversity and abundance.	Species observed prior to mining activities should still occur on site.	Ensure that all employees receive training regarding the fauna occurring on site and on the procedures that should be followed to minimise the impact of their activity on the wildlife.	Monitoring will be done at rehabilitated area on an *annually basis* to investigate species diversity and abundance.
Flora	To minimise the destruction of vegetation units; To control invasion of exotic and invasive species.	Monitor revegetated areas to ensure that the areas become self-maintaining; Monitor species diversity and vegetation cover.	Vegetation should resemble the natural vegetation of the area.	Remove exotic and invasive species; Conduct soil analysis on areas which are slow to revegetate and add fertilisers if necessary; Seed areas with a seed-mix resembling the natural vegetation on areas which is slow to revegetate.	Monitoring will be done at the rehabilitated areas on a *twice a year basis* (mid-summer and mid-winter), where species diversity and vegetation cover will be investigated.
Noise and Vibration	To ensure that the legislated noise and ground vibration levels	Monitor noise and vibrations on site.	Results gathered during monitoring should	Equip machinery with silencers and restrict	Quarterly reports on fall-out dust and noise monitoring will

	will be adhered to at all times; To control the incidence of unacceptable noise levels on site.		comply with standards set out in legislation.	mining activities to day time only.	be conducted as required by legislation. If any complaints are received from the public or state department regarding noise or dust levels the levels will be monitored at prescribed monitoring points.
Surface and Groundwater	To conserve water; To eliminate the contamination of run-off water or water infiltrating the soil.	Monitor surface and groundwater sources by analysing water samples.	Water quality obtained from water samples should comply with the standards set out in legislation.	Construct berms to separate clean and dirty water.	Monitoring takes place by collecting surface water samples every quarter or as required by DWS on the Water Use Licence conditions.

7. Care of infrastructure and machinery

Since 2011 the infrastructure such as the hoist, headgear and all components of the plant were dismantled and removed. The shafts were closed and sealed with a concrete slab initially and later the concrete was removed and replaced with a steel plate and fence.

Structures built and / or renovated specifically for mining purposes, such as the workshop, explosive magazines, wash bays, vehicle maintenance yards, salvage yards and waste disposal sites were removed. Final backfilling/ shaping of the trenches, the storage dam, tailings dumps and slimes dams have not been done. All the above areas are partially rehabilitated and over the years have become re-vegetated.

During the site visit the only infrastructure that was observed was the fenced off power station (which is in a good condition) near the entrance of the mine, managers building to the western side of the mining area, an office building and old dam that was located to the north and a hostel area. The overall condition of the buildings was in relatively poor condition as can be seen in the photos provided below.

Figure 11: *Old Hostel*

***Figure 12**: Old Hostel*

***Figure 13:** Old manager's house*

Figure 14: *Old dam that is filled with building rubble*

7.1 Infrastructure

Since 2011 the infrastructure such as the hoist, headgear and all components of the plant were dismantled and removed. The shafts were closed and sealed with a concrete slab initially and later the concrete was removed and replaced with a steel plate and fence.

Structures built and / or renovated specifically for mining purposes, such as the workshop, explosive magazines, wash bays, vehicle maintenance yards, salvage yards and waste disposal sites were removed. Final backfilling/ shaping of the trenches, the storage dam, tailings dumps and slimes dams have not been done. All the above areas are partially rehabilitated and over the years have become re-vegetated.

The infrastructure that is present on the mine site includes the two shafts that is located adjacent to the two deposits. There are also office buildings, the old hostel buildings and mine manger house on site.

As the farm will in all likelihood continue to be used for cultivation, the manager's house, the compound and the office will be left intact. The water storage tanks and the power supply infrastructure at the compound will remain, as well as the French drains.

During the period of **care and maintenance** the following procedures will be implemented with regards to infrastructure:

The following actions/measures will be implemented during the **decommissioning phase** of the operation:

<u>Surface Infrastructure:</u>

- Dispose of all saleable assets and identify alternatives uses of as much of the infrastructure as possible.
- Remove/dismantle the infrastructure in-situ and ensure that all foundations and debris are removed.
- Rip or plough the surface of the roads, vehicle maintenance yard, storage areas and infrastructure sites to a depth of 300mm, then level and contour the area.
- Whenever possible, spread topsoil which was previously stored for this purpose evenly over the whole area to its original depth.
- Fertilise the area if necessary (based on soil analysis).
- Seed the site with a vegetation seed mix adapted to reflect the local indigenous flora.
- Monitor the rate of rehabilitation. If this does not manifest as a minimum of 50% cover of appropriate species, then a suitable program must be implemented to achieve the required coverage.
- This program will include the addition of fertiliser and an appropriate rate and seeding.

Sealing of underground workings

- Current thinking is that all infrastructure with no future use or resale value and most of the structures will be removed/demolished.
- Once all items of value have been removed from underground, the shafts will be closed and sealed in order to prevent access. It is unlikely that they will be filled as this will sterilise any future mining, in all probability mitigation/management will make provision for fencing off these areas. The advice of the mine safety inspectors/mine engineer will be sought and their requirements adhered to and maintained.
- Stormwater channels will be excavated on the surface to ensure that the shaft and plant areas remain reasonably dry in the event of heavy downpours.
- The claims area will be fenced off.

7.2 Machinery

On the 7th of December 2021 there were no sign of any machinery located on the mine.

Machinery that will be used for rehabilitation will be sourced from the Blaauwbosch mine located nearby.

8. Emergency Response Action Plan

An emergency response plan need to be implemented for the following items :

OPEN PITS

If appropriate bunding or other surface drainage infrastructure is not accommodated during the planning phase, a significant amount of water can find its way into the pit. Depending on the nature of areas around the pit and even inside the pit itself, water quality can deteriorate due to excessive

saline or the lowering of pH. These factors could pose a water quality and quantity risk in terms of disposal when the mine reopens. The open pit could also pose a problem for downstream communities as the pit would accumulate water that would normally have entered surface streams and rivers.

Figure 15: Open Pit

UNDERGROUND

The possibility of water entering the underground workings is high due to the fact that the mine have not been active since 2011 no pumping of water of any kind was conducted. It is rather unsure when the mine will reopen. Depending on the person in charge some miners allow the inflow of water as the work below the water table, but this means you've got to manage it, but it does reduce the rock pressure around the workplace. If the mine pumps the water out which is the other option, you do not have to manage the water within the mine but the rock pressure in the working environment will increase which will then have to be managed.

Water that infiltrate into underground mines will have the risk of decreasing the water quality of the fracture/fractures that may be used for the surrounding farms. The issues involved with water entering a underground mine is:

- **the potential for inter-mine flows into or from adjacent mines, and also the flooding of mines.**
- **Monitoring programmes that needs to confirm the rate of the water rise and water quality as mine floods and also to maintain access to the underground workings.**

- **The amount of dissolved salts wich can lead to corrosion problems and also an increase in suspended solids, increasing erosion.**

As for open pits, water would find its way through openings and aquifers into the underground workings, flooding the mine which could pose a water quality and quantity risk in terms of disposal when the mine reopens. The underground workings could also pose a problem for downstream communities as it would accumulate water that would have entered surface streams and rivers.

SURFACE DRAINAGE

In terms of surface water drainage, the mine needs to pay attention to the stormwater control due to the fact that there is no berms that is constructed to separate clean and dirty water from each other in terms of GNR 704/327 of the National Water Act. Although there is no machinery, plant or wash bay area there is dumps and fine tailings that can leach into the water and then be transported to the pit/underground which can lead to contamination of clean water.

Gutters is equipped at the old hostel building which require some maintenance and must be monitored as this is clean water.

Figure 16: *Gutters that needs to be maintained.*

Natural and engineered drainage structures around the mine site may become ineffective due to erosion, sedimentation, or other factors.

WASTE DUMPS

Figure 17: *Powerline on top of tailings*

Un-rehabilitated or partly rehabilitated waste rock dumps would increase the possibility of material movement to the surrounding environment as a result of erosion. Depending on the type of dump, it could also cause pollution of the surrounding environment as a result of chemicals or other materials emanating from the dump.

TAILINGS STORAGE

Tailings in general are made up out of sand, silt and also clay which are suspended in water-based slurry which can lead to slope failures. It is therefore important that the mine monitor the slopes of tailings and waste dumps to ensure that slides and slope failures are prevented/minimized as far as possible. The risks involve in tailings that are being stored ranges from fatalities due to mud slides- to drainage contamination, flooding and water contamination

Figure 18 : *Tailings*

Figure 19: *Tailings*

Tailing's storage facilities have the same potential risks as waste dumps, with the added risks of release of polluted water from the facility or, in the worst case, catastrophic failure of the facility. Polluted water could find its way through the containment walls, the base of the facility, over the walls of the facility, or through the decant pond. Catastrophic failures of the containment walls could be a result of structural weakness through a design and construction fault or erosion.

INSPECTION AND MONITORING

The standard environmental monitoring should be continued after C&M to ensure continued evaluation of the environment and mitigate a possible emergency response required.

EMERGENCY RESPONSE

An emergency response action plan must be created to mitigate all possible risk identified during the standard risk assessment process.

9. Training

(training provided to the people implementing the care and maintenance programme)

The Caretaker that will remain on the site during the care and maintenance will have to be trained with regards to monitoring and maintenance. Some of the training should include:

- Training regarding alien and invasive plant species and how to eradicate them,
- Animal species identification and relocation
- Erosion monitoring
- Water quality sampling and monitoring
- Monitoring of tailings stability and shaft safety
- Soil sampling and vegetation

10. Health and Safety Management Plan

Statutory safety obligations in respect of mining operations conducted at a mine for care and maintenance must be adhered to. For the purposes of the relevant legislation, mining operations include all operations undertaken for the care, security and maintenance of a mine and plant at the mine during any period when production or development operations at the mine are suspended.

HAZARD IDENTIFICATION

A key statutory safety obligation during operations and during the period of care and maintenance is that the company is required to take all practical measures to ensure that any person who accesses the mine (whether with the consent of the company or as a trespasser) is not exposed to hazards. Hazards means anything that may result in injury to a person or harm to that person's health.

To ensure that no person is exposed to hazards on the site during the care and maintenance period, all buildings, shafts, plant and equipment must be appropriately locked down and secured. Any rehabilitated or partially rehabilitated works must be bunded and fenced as required to prevent any inadvertent or uninvited access. Appropriate signage should also be placed around the site to ensure that all persons are aware that access to the site is prohibited.

APPOINTMENT OF CARETAKER

Once the site has been evaluated for hazards during the suspension of operations and properly secured, an appropriately experienced caretaker must be appointed to undertake daily systematic monitoring of the mine and the safety measures implemented in securing the mine to ensure their ongoing effectiveness. Written reports of each inspection should be prepared by the caretaker and provided to the company. This will ensure that any issues which are identified during daily

inspections are able to be promptly reported to DMRE (if necessary) and that appropriate steps are taken to reduce, minimise and eliminate the hazard in a timely manner.

PROVIDING A SAFE WORKING ENVIRONMENT

The company will owe the usual safety obligations to any employees who are at site, including the caretaker, while the mine is on care and maintenance. These obligations may also be owed to any contractors or labour hire personnel who are deemed to be employees of the company pursuant to the relevant legislation because the company maintains the requisite control over safety issues on site. As an employer, the company must ensure, so far as is practicable, that it provides and maintains a working environment, plant and system of work at the mine in which employees (or deemed employees) are not exposed to hazards.

This will include, but is not limited to, ensuring that any employees who will be present on the mine while it is on care and maintenance receive the appropriate training and induction in relation to the specific issues which may arise at a mine on care and maintenance.

EMERGENCY RESPONSE PLANS

An emergency response action plan should also be developed for implementation in the event there is a safety incident at site during the care and maintenance phase.

There is often a need for greater caution in this key transition phase when the company's financial resources and attention to procedures regarding health and safety by contractors are stretched.

CHECKLIST ITEMS:

To ensure its safety obligations will be met a company should (prior to shutdown):

- undertake a risk assessment of all hazards at site including a consideration of the measures required to manage identified risks during the suspension of operations;
- create a checklist of hazards to be monitored (daily, weekly or monthly) by the caretaker to ensure the measures to manage hazards remain effective;
- ensure a regular reporting mechanism is in place for the caretaker (or any other personnel at site) to keep the company informed of the ongoing management of hazards and the identification of any new hazards; and
- ensure the company has developed and trained relevant personnel in a crisis response action plan for managing any incidents which may occur while the mine is on care and maintenance.

11. Final and Future land use

(a sketch plan drawn on an appropriate scale describing the final and future land use proposal and arrangements for the site)

Since 2011 the infrastructure such as the hoist, headgear and all components of the plant were dismantled and removed. The shafts were closed and sealed with a concrete slab initially and later the concrete was removed and replaced with a steel plate and fence.

Structures built and / or renovated specifically for mining purposes, such as the workshop, explosive magazines, wash bays, vehicle maintenance yards, salvage yards and waste disposal sites were removed.

Final backfilling/ shaping of the trenches, the storage dam, tailings dumps and slimes dams have not been done. All the above areas are partially rehabilitated and over the years have become re-vegetated.

As the farm (or parts thereof) will in all likelihood continue to be used for cultivation, the manager's house, the compound and the office will be left intact. The water storage tanks and the power supply infrastructure at the compound will remain, as will French drains.

Other structures built and / or renovated specifically for mining purposes such and waste disposal sites will be demolished / cleared away, and final backfilling / shaping of the trenches, the storage dam, tailings dumps and slimes dams will be done. All the above areas will then be rehabilitated and re-vegetated.

Residual impacts after the mine had been put on care and maintenance

Residual and Latent Impacts

The residual impacts after the mine had been put on care and maintenance are the same as for closure on the geology in terms of the actual underground mine and blast holes. The shafts will be fenced off and secured, but the underground series of shafts and tunnels will remain a concern for collapses and subsidence, as well as constituting a physical danger to humans and livestock.

The residual impacts include:

- The blast hole constitutes a physical danger to humans and livestock.
- Slimes dams, which occupy land, alter topography and potentially degrade the surrounding soil and water quality.
- Tailings dumps, which occupy land, alter the topography and potentially degrade surrounding soil.
- Potential lack of stability of rehabilitated ground and residue deposits, the possibility of erosion would have to be monitored and handled.
- The potential for the appearance of invasive plants and weeds, especially in rehabilitating areas.
- Failure of the rehabilitated area, or parts of it, to vegetate.

Ground water

When the mine is closed the ground water levels will gradually return to their pre-mining levels. The rate at which the levels are re-established will depend on the prevailing rainfall and recharge conditions as well as the extent to which mining on adjacent properties persist.

Stability of rehabilitated ground and residue deposits

Tailings dumps created during operations will have an angle of 45˚. These dumps will later be rehabilitated to an angle of no greater than 18˚. As part of rehabilitation, it is therefore anticipated that vegetation could be re-established, water run-off and erosion curtailed and the dumps stabilised.

The slimes dam walls will be secured and once the surface area of the dam has dried out sufficiently to be planted, there should be no further impact on the environment. It is planned, to leave a minimum of 0,8m freeboard at the cessation of operations to cater for the occasional heavy downpour.

It is not possible to clearly define the end use of all the disturbed areas due to changing circumstances.

12. Costing

(details of the proposed care and maintenance cost for monitoring programme)

Currently the closure costing for the mine is calculated to be **R 1 854 357.35**. The costs of possible specialist studies that may be conducted was added to the closure costing. The mine currently has sufficient funds and do not need to increase their current guarantee amount.

Table 10: Quantum calculations for the closure of the New Elands mine (December 2021).

No.	Description	Unit	A	B	C	D	E=A*B*C*D
			Quantity	Master Rate	Multiplication factor	Weighting factor 1	Amount (Rands)
Remark:							
1	Dismantling of processing plant and related structures (including overland conveyors and pow erlines)	m3	-	15,94	1	1,10	-
2 (A)	Demolition of steel buildings and structures	m2	-	221,99	1	1,10	-
2(B)	Demolition of reinforced concrete buildings and structures	m2	1 909,46	327,14	1	1,10	687 126,82
3	Rehabilitation of access roads	m2	-	2,10	1	1,10	-
4 (A)	Demolition and rehabilitation of electrified railw ay lines	m	-	385,55	1	1,10	-
4 (A)	Demolition and rehabilitation of non-electrified railw ay lines	m	-	210,30	1	1,10	-
5	Demolition of housing and/or administration facilities	m2	-	443,97	1	1,10	-
6	Opencast rehabilitation including final voids and ramps	ha	3,21	225 957,57	0,04	1,10	31 877,36
7	Sealing of shafts adits and inclines	m3	30,15	119,17	1	1,10	3 952,27
8 (A)	Rehabilitation of overburden and spoils	ha	-	155 155,97	1	1,10	-
8 (B)	Rehabilitation of processing w aste deposits and evaporation ponds (non-polluting potential)	ha	-	193 243,93	1	1,10	-
8 (C)	Rehabilitation of processing w aste deposits and evaporation ponds (polluting potential)	ha	-	561 272,05		1,10	-
9	Rehabilitation of subsided areas	ha	-	129 919,76	1	1,10	-
10	General surface rehabilitation	ha	-	122 909,70	1	1,10	-
11	River diversions	ha	-	122 909,70	1	1,10	-
12	Fencing	m	1 212,52	140,20	1	1,10	186 994,83
13	Water management	ha	0,01	46 733,73	1	1,10	326,85
14	2 to 3 years of maintenance and aftercare	ha	14,24	16 356,80	1	1,10	256 209,10
15 (A)	Specialist study - Engineer report on rehabilitation and safety of sealed shafts	Sum	1,00	200 000,00	1	1,10	220 000,00
15 (B)	Specialist study	Sum	-			1,10	-
					Sub Total 1		1 386 487,24

1	Preliminary and General	83 189,23	weighting factor 2 1,05	87 348,70
2	Contingencies		138 648,72	138 648,72
			Subtotal 2	1 612 484,65
			VAT (15%)	241 872,70
			Grand Total	**1 854 357,35**

KOPHIA DIAMONDS (PTY) LTD

OUTSTANDING REHABILITATION BREAKDOWN

13-Dec-2021

NEW ELANDS MINE			
DUMPS OVER GROWN (m²)		**BRICK STRUCTURES (m²)**	
TAILING DUMP 1	127156.20	BUILDING 1	262.43
TAILING DUMP 2	12937.04	BUILDING 2	37.33
		BUILDING 3	27.18
TOTAL	**140093.24**	RUIN 1	47.83
		RUIN 2	155.55
OPEN AREAS (m²)		BUILDING 4	247.87
		BUILDING 5	251.97
KIMBERLITE PIPE	29602.76	BUILDING 6	198.38
TRENCH 1 (OVER GROWN)	893.70	OFFICE	160.79
TRENCH 2 (OVER GROWN)	1566.44		
		TOTAL	**299.76**
TOTAL	**32062.90**		
		TOTAL LENGTH (m)	
BERMS (m²)			
		FENCE	1212.52
BERM 1 (OVER GROWN)	1344.87		
BERM 2 (OVER GROWN)	959.77	**TOTAL**	**1212.52**
TOTAL	**2304.64**	**CONCRETE STRUCTURES(m²)**	
WATER FEATURES (m²)		CONCRETE SLAB	520.13
		SHAFT CONCRETE	30.15
DAM 1	63.58		
		TOTAL	**550.28**
TOTAL	**63.58**		

Certivied correct by F.J vd Merwe

Other costs that might need to be calculated is the cost of additional training as well as the cost of water quality analyses and soil analyses (If deemed necessary). Cost of herbicides for invasive plant species or equipment needed for the eradication of invasive species might also need to be considered.

13. Legal Obligations and Notifications

It is important to note that regulatory criteria are likely to change over time, and criteria selected for the purposes of closure planning during early operations, may not be applicable at the time of closure. The following legislation and policies are applicable to mining operations and final closure procedures:

- **Constitution of the Republic of South Africa (Act No.108 of 1996, Section 24)**

'The environment must be protected for present and future generations through reasonable legislation and other measures that will prevent pollution and environmental degradation,

promote conservation and will ensure ecologically sustainable development and sustainable use of natural resources while striving for justifiable economic and social development.'

- **National Water Act, 1998 (Act No. 36 of 1998): Section 19 Section 9 of the Regulations on use of water for mining activities focuses on the temporary or permanent closure of mines or related activities.**

Section 9 (1) states 'any person in control of a mine or activity must at either temporary or permanent cessation of operations ensure that all pollution control measures have been designed, modified, constructed and maintained so as to comply with these regulations' and Section 9(2) states that the same mine '….must ensure that the instream and riparian habitat of any water resource, which may have been affected or altered by a mine or activity, is remedied so as to comply with these regulations'.

- **National Environmental Management Act, 1998 (Act No. 107 of 1998)**

Outlines the duty of care to prevent pollution. The polluter is liable for any rehabilitation costs and any damages caused by pollution as stated within the National Water Act, 1998.

- **Mine Health and Safety Act, 1996 (Act No. 29 of 1996)**

Section 2 (2) states that 'the owner of a mine that is not being worked, but in respect of which a closure certificate in terms of the MPRDA has not been issued, must take reasonable steps to continuously prevent injuries, ill-health, loss of life or damage of any kind from occurring at or because of the mine'. Section 9 stipulates that a Code of Practice (CoP) is required for MRD. Provisions for rehabilitation and closure are made within these CoPs.

- **Minerals and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)**

Section 43 places an obligation on the holder of mining related rights to apply to DME for a closure certificate within 180 days of a prescribed event. The application must contain a risk Page 6 of 9 assessment. Section 44 states that when a prospecting right, mining right, retention permit or mining permit lapses, is cancelled or is abandoned or when any prospecting or mining operation comes to an end, no buildings, structures and other objects are to be demolished or removed in terms of any other law (e.g. National Heritage Resource Act, 1999 (Act No. 25 of 1999)) or which have been identified in writing by the Minister.

- **National Environmental Management Air Quality Act, 2004 (Act 39 of 2004)**

Section 33 states that if mining operations are likely to cease within a period of five years, the owner of that mine must promptly notify the Minister in writing- (a) of the likely cessation of those mining operations; and (b) of any plans that are in place or in contemplation for- (i) the rehabilitation of the area where the mining operations were (ii) the prevention of pollution of the atmosphere by dust after those conducted after mining operations have stopped; and operations have stopped.

- **Conservation of Agriculture Resources Act, 1983 (Act No. 43 of 1983)**

In terms of the amendments to the regulations under this Act, landowners are legally responsible for the control of alien species and to handle storm water to prevent erosion on their properties and to protect agricultural resources.

• Broad-Based Socio-Economic Empowerment Charter for the South African Mining Industry

Section 4.1. Through the Mines Qualifications Authority (MQA), shall undertake to provide skills training opportunities to miners during their employment in order to improve their income earning capacity after mine closure. The possible risk factors that could be considered in the risk report are the rehabilitation of the mining area and impacts on agricultural land. Therefore, close attention will be paid to these factors during the operational life of the project. The Company is aware that the holder of the mining RIGHT is liable for any and all environmental damage or degradation emanating from the mining operation until a closure certificate is issued in terms of Section 43 of the MPRDA. The principles for mine closure in accordance with the applicable legislative requirements for mine closure, the holder of a mine permit must ensure that:

- 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
- risks pertaining to environmental impacts must be quantified and managed pro-actively, which includes the gathering of relevant information throughout the life of a mining operation
- the safety and health requirements in terms of the Mine Health and Safety Act, 1996 (Act No. 29 of 1996) are complied with
- residual and possible latent environmental impacts are identified and quantified Page 7 of 9
- the land is rehabilitated, as far as is practicable, to its natural state (ploughed land planted with pastures and used for grazing) which conforms with the concept of sustainable development; and
- mining operations are closed efficiently and cost effectively.

14. Public Participation

(a record of all notices, registers, meetings and comments of the interested and affected parties consulted)

Description of the consultation process: -

- Notification registered letters were sent to all interested and/or affected parties on the 04 April 2022. Attached to each of these letters was a Draft Care and Maintenance Plan, containing information relating to the proposed project.
- The draft Care and Maintenance Plan for comments were also placed at the library in Boshof.
- A newspaper advert will be placed in the Volksblad local newspaper during the week of 04 – 8 April 2022.
- Notices were placed at the entrance to the farm and along the fence line and in the library in Boshof.
- The application was also loaded onto SAHRIS on 04 April 2022.