

LAND USE PLANNING ASSESSMENT REPORT FOR THE LANGEBERG MUNICIPAL TRIBUNAL
(In terms of Sections 56, 65 & 66 of the Langeberg Land Use Planning Bylaw PN 264/2015, 30 July 2015)

**PORTION OF PORTION 6 OF THE FARM KLEINFONTEIN NO. 367, SWELLEDAM DIVISION:
APPLICATION TO REZONE FROM AGRICULTURAL ZONE I TO INDUSTRIAL ZONE III (MINING)**

Reference number: 15/4/14/7	Application submission date	18 October 2022	Date of last comments	6 Sept 2023 Cape Nature	Date report finalised	30 Nov 2023
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PART A: AUTHOR DETAILS

First name(s) & Surname	Tracy Brunings
Job title	Manager: Town Planning
SACPLAN registration number	Pr. Pln A/951/1997

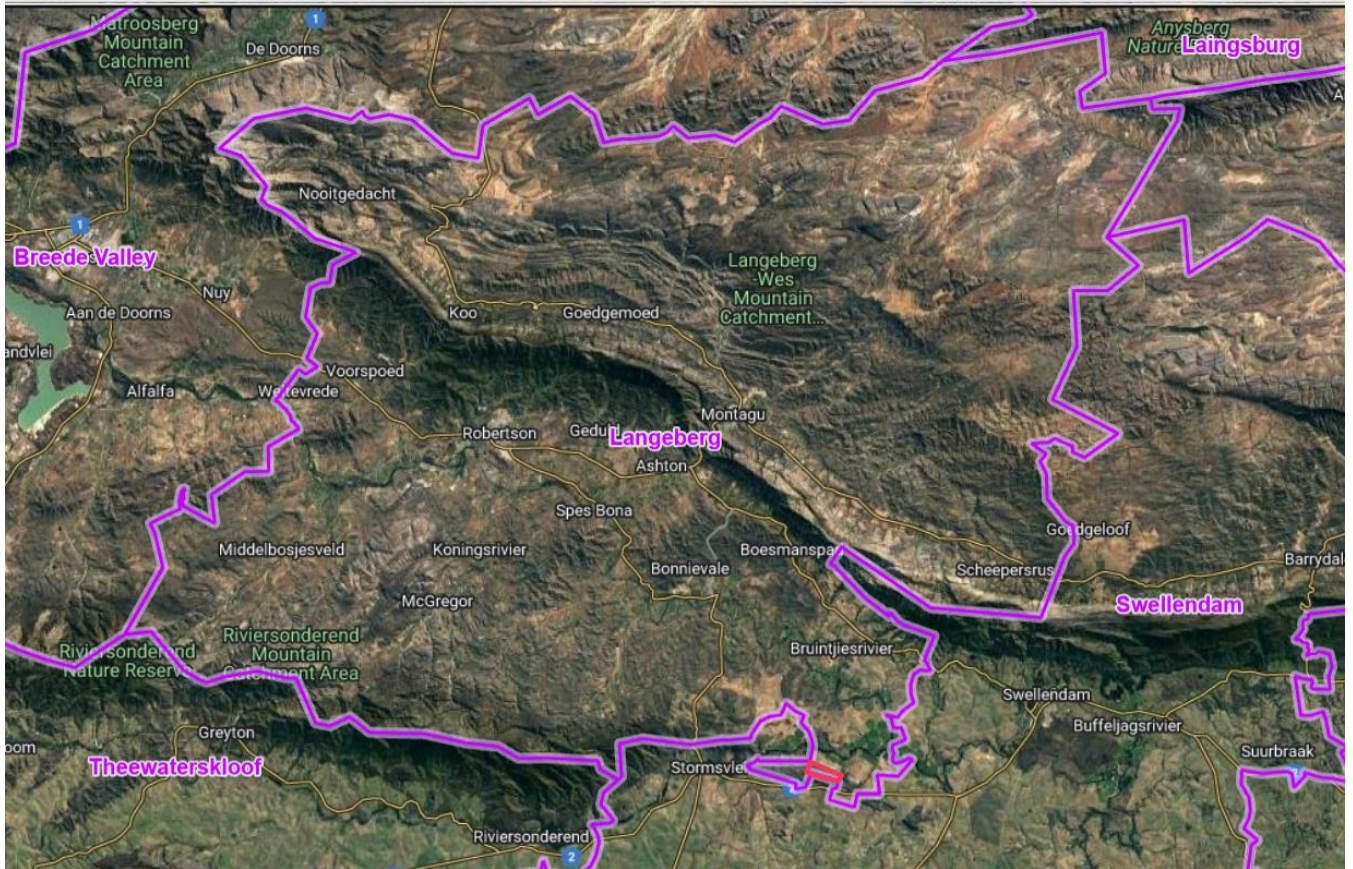
PART B: PROPERTY DETAILS

Property description (Title Deed)	Portion of Portion 6 of the Farm Kleinfontein No. 367, Swellendam Division					
Physical address	Off Minor Road 4553.		Town	Rural – ±18km south-west of Swellendam and ±10km east of Stormsvlei		
Current zoning	Agricultural Zone I	Extent (m2 /ha)	244,9682ha.	Are there existing buildings on the property?	Y	N
Applicable zoning scheme	Langeberg Integrated Zoning Scheme By-law, 2018					
Current land use	Pre-existing mining operation. No rehabilitation was undertaken. Office buildings.			Title Deed number & date	T22167/2021	
Any restrictive title conditions applicable	Y	N	If Yes, list condition number(s)			
Any third party conditions applicable?	Y	N	If Yes, specify			
Any unauthorised land use/building work	Y	N	If Yes, explain			

PART C: APPLICATION DESCRIPTION

Application is made for the rezoning of a 5ha portion of Portion 6 of the Farm Kleinfontein No. 367, Swellendam Division from Agricultural Zone I to Industrial Zone III for the mining of vanadium ore, tin ore, silver ore, platinum group metals (PGMs), nickel ore, manganese ore, copper ore and chrome ore.

Portion 6 of the Farm Kleinfontein No. 367, Swellendam is located in the southern-most part of the Langeberg-Municipal area, surrounded by the Swellendam Municipal area, as shown on the following page.



PART D: BACKGROUND & SUMMARY OF APPLICANT'S MOTIVATION

T-Plan Consultants lodged an application on behalf of the owner, Orren Capital (Pty) Ltd, in terms of the Langeberg Land Use Planning By-law, 2015.

Orren Capital acquired the property over which the previous owner had a Mining Permit and approved Environmental Management Programme (EMPR). The previous principal right was first issued for a period of 3 years from November 2006 to November 2009, with a renewal granted for 5 years from April 2012 to June 2018.

The area earmarked for the proposed mine falls on part of the farm that was previously used for manganese mining and the intention is to increase the size of the existing quarry and expand the minerals to be mined.

The mining activity involves the mining and blasting of the ore body. The project activities will include site clearance, removal of topsoil and overburden, blasting and stockpiling, mobilization of equipment and preparation of area for mining. The mining site itself will contain earth moving equipment, crushing and screening plants, access roads, site office (containers), security gate, site vehicles, parking area for visitors and site vehicles, wash bay, diesel tank and oil storage facilities, ablution Facilities and a weigh bridge.

The subject property takes access off Minor Road 4553 via an existing access road that runs over Remainder Farm 243, Swellendam Division. A Memorandum of Agreement has been signed between the respective landowners concerning the use and maintenance of said access road.

PART E: SUMMARY OF PUBLIC PARTICIPATION					
Public participation required in terms of Sections 45- 49 of the By-law?				Y	N
Where participation is required, state method of advertising.	Press	Notices	Ward Councillor	Other	
PART F: SUMMARY OF COMMENTS RECEIVED DURING PUBLIC PARTICIPATION (if applicable)					
The application was advertised in the press on 31 January 2023 and letters were sent to the surrounding property owners. The only comment received from the public was from Erik Kellerman (owner of Farm 660, Swellendam): Concerned about the housing of workers and would request that workers be accommodated in town and transported to the site daily.					
PART G: SUMMARY OF COMMENTS FROM ORGANS OF STATE AND/OR MUNICIPAL DEPARTMENTS (Annexure E)					
The following Departments were consulted for comment, and had no objection: ☐ Cape Winelands District Municipality (Air Quality) ☐ Department of Infrastructure (Transport Infrastructure Branch) ☐ CapeNature ☐ Department of Environmental Affairs & Development Planning (Development Management Region 2): A Section 53 Land Development approval was granted for the proposed mine on 9 May 2023. ☐ Eskom ☐ Department of Agriculture, Western Cape ☐ Department of Water Affairs (Breede-Gouritz Catchment Management Agency: BGCMA) ☐ Heritage Western Cape					
PART H: OBJECTION AND RESPONSE TO OBJECTION (Attached at Annexure D)					
<u>Objection (attached):</u> The site is located on the southern border of the Langeberg Municipal area and is surrounded by the Swellendam Municipal area. The access to the site is through the Swellendam Municipal area. Swellendam Municipality is of the opinion that there will be limited benefit to the local economy, and has concerns relating to dust impacts on surrounding agricultural properties, and potential pollution of the Breede river. In particular, they query the provisions relating to stormwater, and the potential adverse impacts in terms of manganese toxicity. Further, they note that application has been made to DMR for a mining permit (max of 5 years). Therefore it is questioned why the land use application is for a rezoning, as opposed to a temporary departure. On balance, the Swellendam Municipality are of the opinion that if the mine is approved, the residents and ratepayers in the Swellendam municipality, and the adjoining agricultural environment, and the Breede River , will be at increased risk of adverse impact, without there being any direct or indirect benefit. <u>Response to Objection (attached):</u> • The applicant responded as follows: • The local community will benefit through employment of local residents, with a trickle-down effect of money being spent in the local area and on local contractors. • A revised stormwater management plan has been prepared. • Dust will be managed in terms of the approved Dust Management Plan. • Manganese toxicity is covered in the Freshwater Report by Watson Africa. • Rezoning is applied for rather than temporary departure to enable possible future expansion should this prove viable.					

PART I: MUNICIPAL PLANNING EVALUATION (REFER TO RELEVANT CONSIDERATIONS GUIDELINE)

With reference to Section 65 of the Langeberg Land Use Planning Bylaw, PN 264/2015 of 30 July 2015, an application is required to be assessed, *inter alia*, in terms of the following:

- desirability of the proposed use (with reference to Province's "Relevant Considerations Guideline");
- compliance with relevant plans (IDP, SDF, and PSDF): The proposal must be consistent with the forward planning vision for the application area. Only in exceptional circumstances should deviation from these policies and/or plans be considered;
- compliance with relevant policies and principles;
- compliance with the principles referred to in Chapter VI of the Land Use Planning Act, 2014 (Act 3 of 2014): In terms of section 49 of LUPA consideration must be given to applicable spatial development frameworks and structure plans, and the desirability of the proposal must be determined. In addition, the proposal must be consistent with the land use planning principles referred to in section 59 (spatial justice, spatial sustainability, efficiency and good administration); and
- compliance with the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013): The proposal must be consistent with the principles of spatial justice, spatial sustainability, efficiency, spatial resilience and good administration. Public interest, constitutional transformation imperatives, facts and circumstances of the application, rights and obligations of those affected, impact on engineering services/social infrastructure/open space requirements, *inter alia*, must be taken into account.

Assessment of Land Use application:

1. Zoning Scheme:

The applicable Zoning Scheme is the Langeberg Integrated Zoning Scheme By-law, 2018. Portion 6 of the Farm Kleinfontein No. 367, Swellendam Division is zoned Agricultural Zone I in terms of these Zoning Scheme regulations.

The proposed use falls within the definition of mining, which is defined as "*any operation or activity for the purposes of winning any mineral on, in or under the earth, water or any residue deposit, whether by underground or open working or otherwise and includes any operation or activity incidental thereto*". This use is only permitted within Industrial Zone III and hence an application to rezone a footprint of the farm from Agricultural Zone I to Industrial Zone III is therefore required.

Historically, applications for mining have been approved as departures for the lifespan of a mine. Advice in this regard was sought from DEA&DP (Theo Rebel: Chief Town Planner: Development Management), who responded as follows:

"In the LUPO regime it was indeed so that mining applications for sand, clay, stone-quarrying, stone-crushing and brickmaking were considered and granted as temporary departures for a period depending on the lifespan of the mine. However, in terms of LUPA..... a temporary departure carries a maximum non-extendable period of 5 years and may not be granted more than once on the same piece of land. (The principle applied here was that if a land use is to exist beyond 5 years then it is not temporary in nature anymore and a more permanent solution needs to be applied, hence the need then to rezone the land.)"

Therefore:

- *Prospecting applications could be considered as temporary departures, if prospecting can be completed in 5 years, which generally should be the case.*
- *Once prospecting has proved that mining is indeed feasible and mining is due to commence, the land needs to be rezoned."*

2. Mining Authorisation:

In terms of the Minerals and Petroleum Resources Development Act No. 28 of 2002, all mining activities require a Mining Permit from the Department of Mineral Resources & Energy (DMR). A Mining Permit was issued to Orren Capital by the Department on 26 October 2022, valid until 25 October 2024 but which may be renewed for a further three years. The permit area is valid for a portion of Portion 6 of the Farm Kleinfontein No. 367, Swellendam Division, as indicated on the attached plan 11/2022.

A rehabilitation plan for the previously mined area was submitted as part of the FBAR/EMPr, dated June 2022, but was supplemented by an updated Revegetation and Rehabilitation Plan and Invasive Alien Species Clearing Plan on request by CapeNature.

3. Environmental Authorisation:

Environmental Authorisation was issued by DMR on 19 September 2022 for mining activities conducted over an area of 5ha at a depth of 4 – 10m.

4. Approval in terms of the LUPA Regulations:

Due to the size of the mining site, Provincial approval is required in terms of LUPA. On 9 May 2023, approval was issued in whole in terms of Section 549) of the WC LUPA, 2014, read with Regulation 21() of the WC LUPA Regulations, 2015: Amendment 2019 (PG 8083 dated 15 April 2019).

5. Title Deeds:

There are no restrictive conditions of title with regard to the proposed use of a portion of the farm for mining and the applicant has been authorised by the landowner to lodge the application.

6. Desirability of the Site and the Proposed Use:

The area is characterised by an undulating landscape with moderate to steep slopes with transformed and two degraded non-perennial drainage lines present on the site. The topography of the site has already been severely altered by the previous mining operations. A large part of the 5ha area earmarked for the proposed mine was previously used for manganese mining, although most of the infrastructure including the sedimentation ponds is located outside of the 5ha site and will need to be relocated to comply with DMR's 5ha requirement.

Mining activities are required in locations where the required natural materials occur in sufficient quantity and quality and in accessible locations so as to reduce transport distances, wear and tear of the road network and associated costs. These requirements largely determine site selection. In addition, the following factors require assessment when evaluating the site-specific desirability of applications for mining in agricultural areas:

- impact on productive agricultural land and the rural character of the area;
- impact on sensitive natural landscapes, particularly natural vegetation and watercourses;
- stormwater implications;
- implications for overhead and underground services, particularly electrical and telephone lines;
- access and traffic implications;
- impact on the amenity of the neighbourhood in terms of dust and noise;
- visual impact; and
- the need for rehabilitation in terms of aesthetics, safety and environmental impact.

An assessment of the above factors with regard to the desirability of the proposed mining activities on a portion of Portion 6 of the Farm Kleinfontein No. 367, Swellendam Division, indicates the following pro's and con's:

PROS:

TRAFFIC IMPACT

A Traffic Impact Assessment was conducted by Messrs TopEng for the proposal and the conclusion was that the trip generation of the mine remains negligible. It will have no significant impact on traffic operations nor the safety of the intersection of the N2 (section 4) and Minor Road 4553, provided recommended restrictions pertaining to truck type (restricted to rigid vehicle trucks only) are adhered to. The application and the TIA were furthermore supported by the Department of Transport & Public Works.

Access roads exist on site and any additional temporary roads created in the mining site will be rehabilitated on completion of the Mining Permit operations, to the satisfaction of the relevant landowner.

The proposed mining area takes access off an existing dirt road which runs from Minor Road 4553, across private property (Remainder Farm 243) for a distance of 829m. A Memorandum of Agreement was concluded between the applicant and the owner of Remainder Farm 243 (Robyn Farm (PTY) LTD) in which Robyn Farm agrees and undertakes that it will grant Orren Capital, or any individual(s) authorised by Orren Capital, unfettered access to use the identified road to access Farm 367/6.

Although the agreement states that both parties are to contribute proportionately to the upkeep of Minor Road 4553, a condition of approval from the Department of Transport & Public Works is that the mine bears the cost for the periodic grading and maintenance of Minor Road 4553.

AGRICULTURAL PRODUCTION

The farm is large, and the primary use of the property will remain unchanged as natural vegetation with some grazing. There will be no impact on agriculturally productive land and the potential for conventional agriculture is limited by the undulating nature of the property, which is steep in parts, and the sandstone geology. The Provincial Department of Agriculture has no objection to the proposed mining activities.

The submission from the adjacent property owner, Farm 660, did not relate to the impact of the mine on agricultural production. In a Memorandum of Agreement, the owner of Remainder Farm 243 merely states that dust harmful to farming activities must be managed and controlled as per the accepted Dust Management Plan and EA conditions.

INFRASTRUCTURE SERVICES

There are no overhead or underground services that will be impacted on. No water will be used in the mining process and non-potable water will be used for dust suppression. A pre-existing borehole on the farm has been identified as a viable source of water, but until such time as the Water Use License has been granted, potable water for human consumption will be supplied by private contractors at the landowner's expense.

The Langeberg Municipality Civil Engineering Services Department furthermore has no objection to the proposed application, subject to conditions relating to the provision of water and sewage disposal.

SOCIO ECONOMIC

The mining industry contributes about 40% to the local GDP. The establishment of mining operations has the potential to generate related business investments and use of existing local businesses.

The local community will benefit from the mining operations through the employment of local residents as part of the labour force. This will have a trickle-down effect with money spent in the area, thereby contributing to economic well-being.

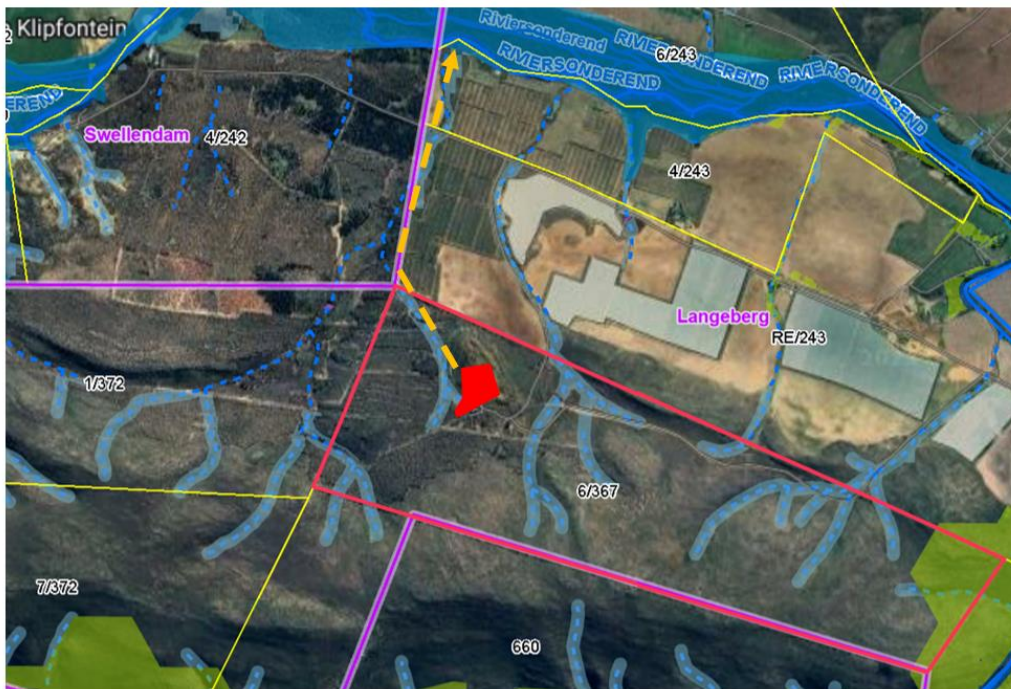
It should further be noted that no mining employees will be accommodated on the property, which was a concern raised by one of the neighbours (Mr Kellerman).

CONS:

The most significant potential negative effects relate to visual impact and the environmental sensitivity of the site. The disturbance of the natural area will, however, be contained within the boundaries of the site.

GROUND WATER POLLUTION

The mine is 1,5km from the Sonderend River, which is a main tributary of the Breede River (located 7km away), and two non-perennial drainage lines are present on the property, one of which skirts the toe of the mine within the 100m controlled area:



Given the average maximum daily rainfall for the area, structures such as trenches, berms and sedimentation ponds may be necessary to keep contamination out of the drainage lines and out of the Sonderend River and Breede River.

A Freshwater Report and Stormwater Management Plan, dated June 2023, was compiled as a requirement of section 21 of the National Water Act, 1998 (Act 36 of 1998), with measures to intercept stormwater runoff and minimise the impact on freshwater ecology.

ENVIRONMENTAL SENSITIVITY

The Ecological Report notes that the proposed mining footprint is located outside any listed CBA or ESA. This is most likely due to the fact that this area has been significantly transformed and disturbed by historical mining activities resulting in this localised area losing its ability to fulfil its natural functions and services, comprising of an area either devoid of vegetation or containing a sparse transformed vegetation cover.

Furthermore, access to the mining site will be along existing access roads and as such this aspect will also have no impact on the CBAs and ESAs of the region.

No rehabilitation has been carried out to the area disturbed by former mining activities and CapeNature acknowledges that there is unlikely to be a healthy seedbank of indigenous fynbos vegetation. It is, therefore, recommended that shaping of areas under rehabilitation to natural topography be undertaken and that there should be continuous removal of invasive alien seedlings within the areas under rehabilitation as soon as they are identifiable. In conclusion, CapeNature supports the implementation of the upgraded Revegetation and Rehabilitation Plan and the Invasive Alien Species Clearing Plan, adherence of which forms part of the conditions of approval.

It should be noted that the proposed mine will incorporate the rehabilitation of the previously disturbed areas in their rehabilitation programme and in such a way address the activities.

BGCMA supports the application with conditions, which are included as a condition of approval in the recommendation below.

NOISE & DUST

A Dust Management Plan was compiled that prescribes measures to ensure that impacts related to dust associated with the construction of the proposed development are avoided, or where avoidance is not possible, is mitigated. Although the Plan was compiled in May 2020 to address dust related impacts associated with the construction phase, including associated infrastructure, it is held that the specific measures listed will also apply in respect of the mining phases of the project.

CWDM's Air Quality Officer advised that the proposed mining activity is not a listed activity in terms of NEM: AQA, 2014 and that DMR is recognized as the competent authority in terms of NEMA to manage the mine in terms of NEMA: AQA. The Air Quality Officer, however, noted that an Atmospheric Impact Report should have been compiled during the EIA phase to determine the potential and/or cumulative impacts on the surrounding environment and human health, and to establish a baseline for ambient air quality at the proposed mine. It was further proposed that representative ambient air quality and dust fall monitoring should be considered prior to the commencement of the proposed mine.

As per the Dust Management Plan, however, Orren Capital will be required to implement and maintain a dust monitoring programme for the construction and mining phases of the project, to ensure compliance with the relevant quality requirements (i.e., acceptable dust fallout rates) as prescribed in National Dust Control Regulations.

The potential impact of the mining activity on the noise ambiance of the area is deemed to be of low to medium significance as discussed in the FBAR. Due to the mine location, the noise created by mining and associated activities will not have a significant impact on any surrounding neighbours. Noise created by blasting within the mine area will be managed and monitored. Blasting days will be advertised and neighbours will be informed of the date and time of the blast.

VISUAL INTRUSION

Although the potential visual intrusion of the stockpiles and excavations is identified in the FBAR as Medium-High, after mitigation the visual intrusion associated with the establishment of the mining area is deemed to be low based on the small scale of the proposed operation, proposed progressive rehabilitation, as well as the fact that no new infrastructure will be established. Should the rehabilitation measures be implemented very little residual visual impact is expected upon closure of the mine.

7. Spatial Development Framework Plans:

The PSDF (Nov 2005) Section 4.1.7.3 states that "A significant issue relating to mining is the need to find a balance between economic and environmental considerations since minerals are recognised as vital resources for building purposes as well as other industrial considerations". The proposal meets the overall aims of the Provincial SDF and the Langeberg SDF with regard to economic development.

The following guidelines for managing rural land use change are included in the Western Cape Provincial SDF's Rural Land Use Planning and Management Guidelines (2019):

- The aim of strengthening the rural economy through rural industry is to ensure such uses are "in suitable locations and at appropriate scale" (P43).
- Rural industry should be located adjacent to, or in close proximity to, the regional route network.
- Extractive industry needs to conform to the provisions of the MPRD Act 28/2002; the Mine, Health and Safety Act 29/1996; and NEMA principles for the protection of the rural environment.
- Extractive industry should exclude any permanent on-site accommodation.

In terms of the Langeberg Spatial Development Framework, the property in question is intended for agricultural and open space purposes. With reference to the Spatial Planning Categories (SPCs) in terms of the Langeberg SDF, the proposed mining footprint is located outside any listed CBA or ESA. Furthermore, access to the mining site will be along existing access roads and as such this aspect will also have no impact on the CBAs and ESAs of the region.

PART J: ADDITIONAL PLANNING EVALUATION FOR REMOVAL OF RESTRICTIONS (N/A)

PART K: RECOMMENDATION

That the application to rezone a 5ha portion of Portion 6 of the Farm Kleinfontein No. 367, Swellendam Division, as depicted on the plans marked ZANDBERG FONTEIN 97/4-LBM-LP, TP(a), TP(b), ZP(a) and ZP(b), from Agricultural Zone I to Industrial Zone III (Mining) be approved in terms of Section 60 of the Langeberg Land Use Planning By-law, PN 264/2015 subject to the conditions of approval, in terms of Section 66 of the aforementioned By-law, as set out in Annexure A.

That the registration of the required right-of-way servitude over Remainder Farm 243, Swellendam Division in favour of Portion 6 of the Farm Kleinfontein No. 367, Swellendam Division, as referred to in the conditions of approval, is determined to be exempt from the provisions of Sections 15 and 20-23 of the Langeberg Municipal Land Use Bylaw, PN 264/2015 in terms of Section 24(1)(f) of the aforementioned Bylaw.

Notes:

- (i) All relevant sections and regulations of the National Water Act 36/1998 must be adhered to.
- (ii) The applicant is reminded of his/her general duty of care in terms of Section 28(1) of NEMA: "Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring continuing or recurring, or, in so far as such harm to the environment is authorized by law or cannot reasonably be avoided or stopped, to minimize and rectify such pollution or degradation of the environment".
- (iii) Non-compliance with a condition of approval constitutes an offence in terms of Section 86(1)(a) of the Langeberg Land Use Planning Bylaw PN 264/2015. Where there is any uncertainty regarding the conditions, the Municipal Town Planning Department must be contacted.

Reasons for decision:

1. The area earmarked for the proposed mine falls on part of the farm that was previously used for manganese mining and has been significantly transformed and disturbed.
2. The proposed use is consistent with the PSDF and Rural Development Guidelines, 2019.
3. There will be no adverse impact on productive agricultural land.
4. The mine has been in operation between 2006 and 2018, with no adverse impacts or objections.
5. An EA has been issued by DMR in terms of NEMA.
6. The approved EMPr addresses mitigating measures in terms of stormwater management, noise, dust and rehabilitation.
7. Administrative procedures have provided for public participation and no objections were received from the public.
8. The objection from Swellendam Municipality is considered to be addressed by a number of conditions of approval, including compliance with the Dust Management Plan and the Stormwater plan, and phasing, with compliance checks prior to a new phase commencing.

PART K: ANNEXURES

Annexure A	Conditions of Approval
Annexure B	Application
Annexure C	Plans: Locality and Site
Annexure D	Objections & Representations
Annexure E	Comments from Departments
Annexure F	Environmental Authorisation 19/9/22
Annexure G	Mining permit 26/10/22
Annexure H	Stormwater Plan
Annexure I	Dust Management Plan
Annexure J	Rehabilitation & Alien Clearing plan

PART L: SIGNATURES

RECOMMENDATION SUPPORTED

☐

RECOMMENDATION **NOT** SUPPORTED

☐

Comment:

.....
T BRUNINGS
MANAGER : TOWN PLANNING

.....
DATE

SKEDULE / SCHEDULE 1

Ooreenkoms / Agreement

aangegaan deur / entered into by

.....
Volle name en van / Full name

.....
Identiteitsnommer / Identity number

.....
Adres / Address

(die aansoeker / the applicant)

met die **Langeberg Munisipaliteit** / with the **Langeberg Municipality**

ten opsigte van die volgende ontwikkeling, soos goedgekeur op:
in respect of the following development, as approved on:

December 2023

GEDEELTE 6 VAN PLAAS KLEINFONTEIN NR. 97, SWELLENDAM DISTRIK: HERSONERING VANAF LANDBOUSONE I NA NYWERHEID III (MYNBOU)

PORTION OF PORTION 6 OF THE FARM KLEINFONTEIN NO. 367, SWELLENDAM DIVISION: REZONING FROM AGRICULTURAL ZONE I TO INDUSTRIAL ZONE III (MINING)

Die aansoeker aanvaar die voorwaardes ten opsigte van bogenoemde goedkeuring en onderneem om toe te sien dat die voorwaardes uitgevoer word.

The applicant accepts the conditions in terms of the abovementioned approval and undertakes to ensure the execution thereof.

Geteken op die / Signed on the dag van / day of 20.....

te / at

.....
Aansoeker / Applicant

.....
Datum

CONDITIONS OF APPROVAL

IN TERMS OF SECTION 66 OF THE LANGEBOEG LAND USE PLANNING BYLAW PN 264/2015, 30 July 2015)

**PORTION OF PORTION 6 OF THE FARM KLEINFONTEIN NO. 367, SWELLENDAM DIVISION:
APPLICATION TO REZONE FROM AGRICULTURAL ZONE I TO INDUSTRIAL ZONE III (MINING)**

1. The area zoned for Industrial Zone III (Mining), including all related infrastructure, is shown on Site Plan and Infrastructure Plan marked KLEINFONTEIN 367/6 SWE-LBM-TP1 and ZP1, respectively.
2. All infrastructure to be utilised as part of the current mining operations, including all stormwater infrastructure must comply with the DMR's maximum area of 5ha. No mining and related activities may occur outside the 5ha. area.
3. The approval applies for a maximum period of 10 years from the date of this approval.
4. **Prior to ANY activity commencing on site:**
 - 4.1. A Site Development Plan must be submitted for approval by the Manager: Town Planning, showing the proposed first phase of mining and the proposed stockpile and parking & loading area.
 - 4.2. The phase to be mined and the proposed parking and loading area/s must be clearly demarcated on the site and no equipment, vehicles or activities may occur outside the demarcated area.
 - 4.3. The owner must appoint a Land Surveyor to survey the right-of-way servitude over Rem/243, to be registered in favour of Farm 367/6 for access to Minor Road 4553 to the satisfaction of the Department of Infrastructure.
5. **Prior to commencing with a NEW PHASE of mining:**
 - 5.1. The owner must contact the Town Planning Department to convene an on-site meeting with the relevant Departments to confirm that mining activities are operating within the specified conditions of approval.
 - 5.2. Any requirements of the relevant Departments must be complied with prior to the commencement of the next phase.
 - 5.3. Water tests must be submitted to confirm that there is no polluted runoff from the mine entering nearby watercourses.
6. The establishment, operation and closure of the mine must be in accordance with the Environmental Authorisation and Environmental Management Programme (EMP) as approved by the DMR dated 19 September 2022 (WC 30/5/1/3/2/10291 MP) (attached), and the Mining Permit dated 26 October 2022 (attached).
7. Times of Operation: No mining and transportation activities may occur:
 - 7.1. Before 8h00 and after 17h00 on Mondays.
 - 7.2. Before 8h00 and after 14h00 on Fridays and Saturdays.
 - 7.3. On Sundays - closed.
 - 7.4. During exceptionally windy conditions i.e. where winds are stronger than a moderate breeze.
 - 7.5. During exceptionally wet conditions where muddy road conditions may have adverse impacts on the surface of the access roads and/or the natural environment.
8. Neighbours must be informed of the date and time of blasting that will occur, within 48 hours of said blasting activity.
9. The owner and operator must comply with the conditions imposed by the Langberg Municipality: Senior Manager: Civil Engineering Services Department, dated 28 April 2023:
 - 9.1. The Langeberg Municipality cannot supply potable water to the above property. The provision of water and sewer services is the responsibility of the owner.
 - 9.2. It is the responsibility of the owner to ensure that water provided complies with SANS 0241 specifications.

- 9.3. Provision must be made for a conservancy tank/s for the disposal of sewerage. Tanks must comply with all minimum prescribed specifications and provision must be made for the tanker to have access to the conservancy tank/s.
- 9.4. The maintenance and regular emptying of the conservancy tank/s is the responsibility of the owner.
10. The owner and operator must ensure compliance with the Stormwater Management Plan (Watsan Africa, June 2023).
11. The owner and operator must ensure compliance with the National Dust Regulations (Regulation 827 of 1 November 2016), National Atmospheric Emission Reporting Regulations, 2015 and the Western Cape Noise Control Regulations, Provincial Notice 200 of 20 June 2013.
12. The Dust Management Plan must be submitted to the Langeberg Municipality's Air Quality Officer for approval, together with dust fallout sample results to establish a baseline for ambient air quality at the proposed mine PRIOR TO mining.
13. The owner and operator must ensure compliance with the Revegetation and Rehabilitation Plan (12/07/23) and the Invasive Alien Species Clearing Plan (12/07/23).
14. The conditions imposed by the Department of Infrastructure (previously Department of Transport) in their letter dated 6 March 2023 (attached) must be complied with.
15. The conditions imposed by Heritage Western Cape in their letter dated 12 July 2022 (attached) must be complied with.
16. The conditions imposed by the Breede-Gouritz Catchment Management Agency in their letter dated 27 March 2023 (attached) must be complied with.
17. The conditions imposed by the CapeNature in their letter dated 6 September 2023 (attached) must be complied with.
18. The conditions imposed by Eskom, in their letter dated 22 February 2023 (attached) must be complied with.
19. No name or advertising sign may be erected without written approval of the administering authority.
20. The owner must sign the attached agreement with respect to the implementation of all conditions of approval. The conditions of approval must be brought to the attention of all persons (employees, sub-consultants etc.) associated with this activity.

INTRODUCTION

This report serves as motivation for the application of rezoning to be submitted to the Municipality. The report has been structured around the specifications as set out by Section 65 of the Municipal By-Law (7461/2015) of the area, also taking into account Section 42 of the Spatial Planning and Land Use Management Act (Act 16 of 2013) and Chapter 5 and 6 of the Western Cape Land Use Planning Act (Act 3 of 2014) and Section 10 of the Western Cape Land Use Planning Regulations, 2015.

Any and all information presented here was compiled with the Landowners consent and discussed in detail with the Municipality before submission of the final, completed application.

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 - 2.3.1 Motivation in terms of Spatial Planning and Land Use Management Act 16 of 2013
– Section 42 and the Land Use Planning Act 3 of 2014 – Chapter 6, Land Use Principles
3. Zoning
 - 3.1 Current Zoning
 - 3.2 Rezoning
 - 3.3 Impact on Spatial Development Framework - Integrated Development Plan
4. Final Basic Assessment Report and Environmental Management Programme
 - 4.1 Environmental Impact Assessment Report – Environmental Impacts
5. Conclusion

1. The Applicant

The Landowner is Orren Capital (Pty) Ltd, registration nr, 2020/8658/6307, as indicated by the Title Deed (T22167/2021) of the property. A copy of the Title deed and Surveyor General Diagram is hereto attached as Annexure D. They are herewith applying for a rezoning of a portion of the above-mentioned property for the purposes of mining at the Langeberg Local Municipality(Municipality). The Application document and proof of payment is attached hereto in Annexure A. A Conveyancer Certificate has also been attached as Annexure C. By virtue of Section 53 of the Mining Titles Registration Amendment Act, Act 24 of 2003, no restrictive conditions exist in the Title Deed that would hinder the application process for rezoning of the land for mining purposes.

Orren Capital (Pty) Ltd has applied for a mine permit for a 5ha area on the farm at the Department of Mineral Resources and Energy(DMRE). A copy of the mine permit, once granted, will be provided to the Municipality upon receipt thereof. Please see proof of application submitted in Annexure D.

The Landowner has signed a Power of Attorney (POA) which allows for TPlan to apply for the Land Use application on their behalf. A copy of the POA is attached hereto in Annexure B, along with the Company documents and Directors Identification document. No bond is held over the property and therefor no Bondholders Consent is necessary.

Background

Orren Capital Pty Ltd has acquired farm portion 6 of Kleinfontein 367 over which the previous owner held a Mining Permit and approved Environmental Management Programme (EMPR). The previous principal right was first issued for period of 3 years from November 2006 to November 2009. To our knowledge operation operated for 8 years if one includes the renewal granted for 5 years in April 2012 to June 2016.

The area earmarked for the proposed mining falls on a section of the farm that was previously used for manganese mining, and the intention of this application is to increase the existing quarry and expand the minerals to be mined.

The types of mineral to be mined is Vanadium ore, Tin ore, Silver ore, PGMs, Nickel ore, Manganese ore, Copper ore and Chrome ore. The method that will be employed is a very basic form of open cast mining, and a 5ha area will be demarcated for mining activities. See image on following page.

Description of Site Activities

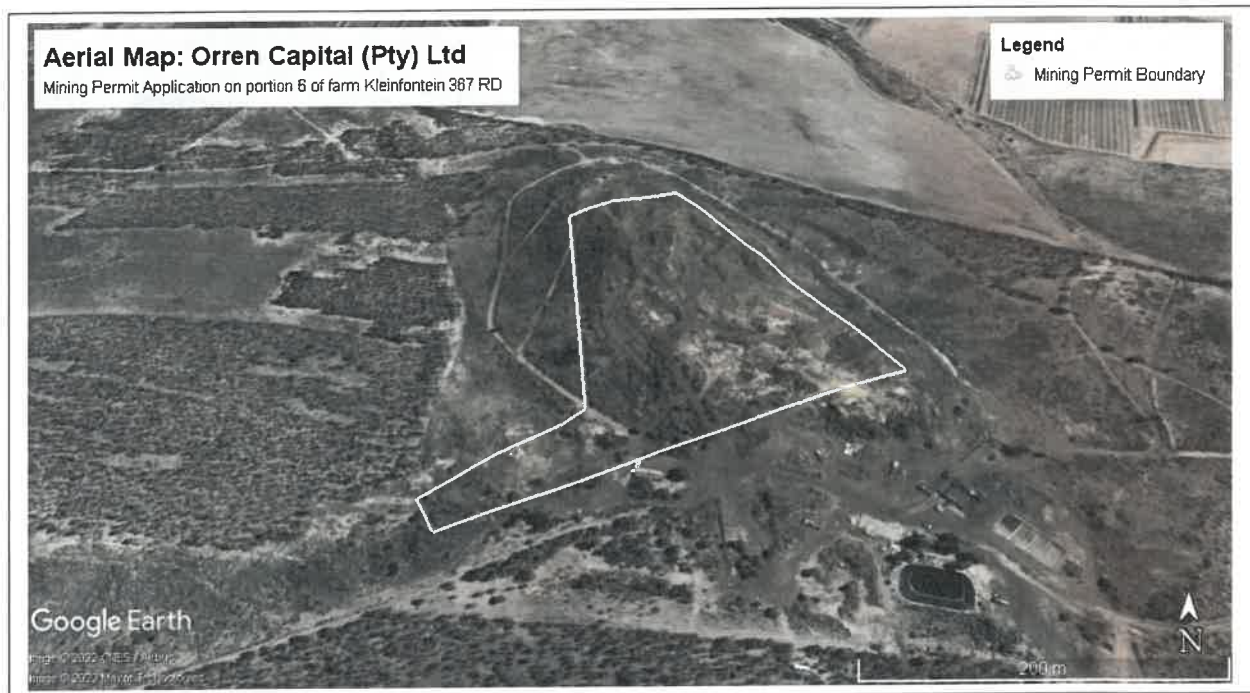
Subsequent mining and blasting of the orebody using a truck and shovel operation will be conducted. A front-end loader will be used to load the material into haulage trucks to the end user. The project infrastructure and activities will include site clearance, removal of topsoil and overburden, blasting and stockpiling, mobilisation of equipment and preparation of area for mining. Further activities include the excavation of an open cast mine, creating a loading zone, managing dust control, hauling, and transporting of ore, setting up of ablution facilities and finally rehabilitation of site.

Please see further detail of site activities as per description in FBAR pages 15-17.

1.1 Area Description

The area earmarked for the proposed rezoning is situated on Portion of Portion 6 of the farm Kleinfontein 367 and can be found 23,2km on the eastern side of Stormvlei towards Swellendam. Access to the mine is via the N2 on to Minor Road 4553. The current zoning of the area is Agriculture, with the proposed zoning to be Industrial Zone 3.

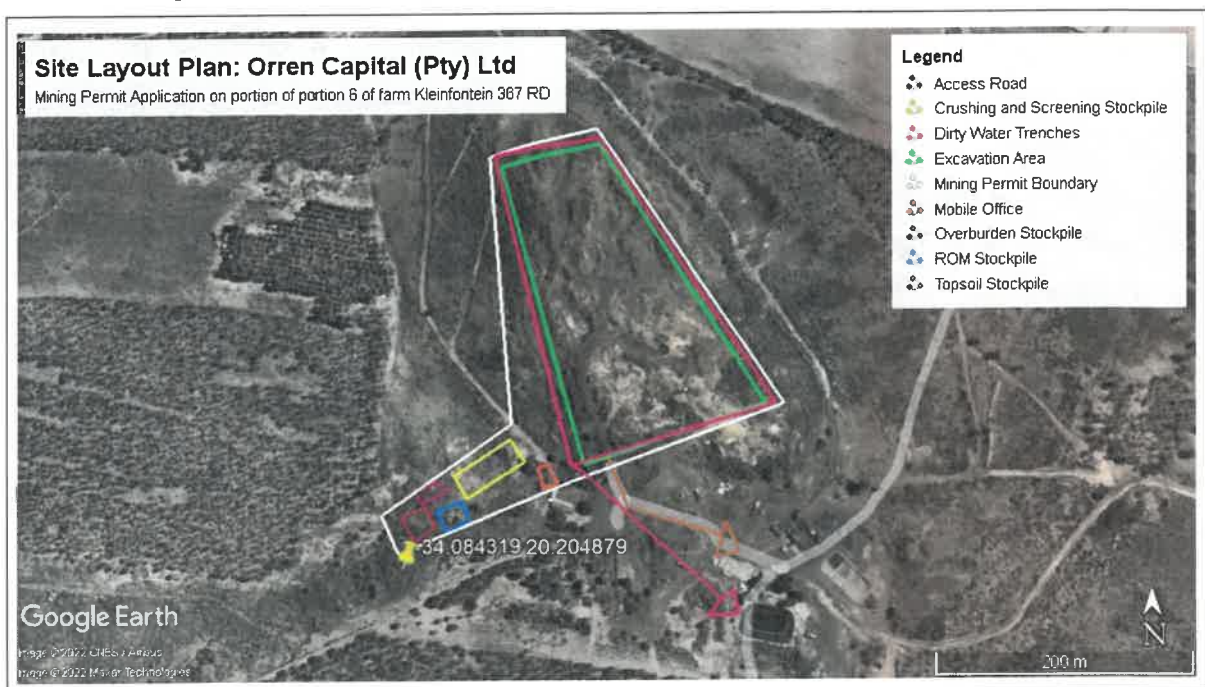
The following is a arial view of the area with the mining permit boundary indicated.



DECIMAL DEGREES

	LAT (S)	LONG (E)
A	-33.084319°	20.204879°
B	-33.084139°	20.20478°
C	-33.083283°	20.205823°
D	-33.081277°	20.205602°
E	-33.081103°	20.20654°
F	-33.083169°	20.208133°
G	-33.083666°	20.20633°

The following is an image of the proposed site layout and activities.



Annexure G holds the Maps as required by the Municipality.

1.2 Reason for application

Due to the nature of the area and the current land use zoning of Agriculture over the property, the Municipality requested the landowners to make an application under the Langeberg Municipal By law and the Spatial Planning and Land Use Management Act (2013)(SPLUMA) for the necessary land use amendment to allow for mining purposes.

The area was earmarked due to a pre-existing mine operation, the mine permit for the existing mine expired in 2016. Further specialist studies showed the availability of the minerals as listed below and therefor initiated the process for a mine permit application and land use application. Currently the land is vacant and consist of grazing, farming, agricultural activities and previously mined out of manganese ore and the site consist of infrastructure, stockpiles, mining plant and pollution control dam. Please pictures in Annexure D.

The demand of the mentioned commodities in the area is increasing day by day both for private construction activities and infrastructure development by Government Agencies. The primary reason for the economic growth can be attributed to the growth in infrastructure. Infrastructural growth is directly proportional to the availability of raw materials/ore.

Purposes of the proposed mined commodities are:

Vanadium ore – Steel alloys that used to make extremely tough tools such as axles, Armor plates, car gears, springs, cutting tools, piston, rods, and crankshafts.

Tin ore – It resist corrosion and used as a protective coating for other metals.

Silver ore – Precious metals used for coins and bullions.

Platinum Group Metal – There used for jewellery and watches, catalytic converter in an automobile, lip sticks, shampoo, contact lenses etc.

Nickel ore – used to make alloys, as nickel adds to toughness, strength, rust resistance and various other electrical, magnetic and heat resistant properties.

Manganese ore – used in a form of ferromanganese and silicomanganese alloys for iron and steel manufacture

Copper Ore – Used to conduct electricity mostly as wiring, conductor of heat and cooking utensils

Chrome ore – used in chrome plating and alloying for production of corrosion resistant superalloys, nichrome, and a stainless steel. Chromium is used as a pigment for glass, glazes, paint, and oxidizing agent for tanning leather.

The socio-economic status of the area within which the proposed mining will take place will ultimately benefit from the establishment of the mining operation. The establishment of the mine will contribute to the local economy through creation of job opportunities and entrepreneurship.

1.3 Pre-Submission Consultation and Report

A pre-submission consultation was had with Ms Tracey Brunings of the Langeberg Local Municipality on the 5 September 2022. The meeting report has been attached in Annexure E.

Basic application procedures were discussed and finalised. Ms Brunings made mention of the following that would need to be addressed:

- Pre-existing mining operation – Discussed in Section 1.2
- Access Road – Discussed in Traffic Impact Assessment report Arrangement with neighbour to be finalised.
- Toxicity of Manganese mining – detail description in FBAR pg. 52 – 56 and Annexure F, document from Johan West of Green Africa Group .
- Air quality – Comments are awaited from Mr Dave van Schalkwyk and will be provided to the municipality.
- Application for Rezoning not Departure – future potential for mine expansion therefor rezoning.

2. Interested and Affected parties

2.1 Landowner

Consultation was had with the landowner regarding the proposed rezoning application and details where discussed pertaining to the application and procedures to be followed. As stated previously the landowner was requested by the Municipality to make the necessary land use application to accommodate for the mining on the property. A signed POA also serves as proof of consultation had and can be seen attached in Annexure B.

2.2 Notice to Interested and Affected Parties

As confirmed with Ms Brunings from the Municipality, notice of the proposed rezoning application will be given via notice letters from Langeberg Local Municipality that will be sent to the surrounding landowners and any other affected parties they deem necessary.

An advertisement will be placed in the local newspaper as well.

All correspondence received / submitted to the Municipality, will be provided to Tplan as well.

2.3 Motivation in terms of Legislation

2.3.1 Motivation in terms of Spatial Planning and Land Use Management Act 16 of 2013

– Section 42

Land Use Planning Act 3 of 2014 – Chapter 6, Land Use Principles

Section 42 of the Spatial Planning and Land Use Management Act 16 of 2013 states that the Municipal Planning Tribunal must take the development principles stipulated in Chapter 6 of the Land Use Planning Act 3 of 2014 into account when deciding an application.

- **The principle of spatial justice.**

The property in respect of which the applicant is applying is privately owned. The land is currently zoned for agricultural use. The applicant is applying for a rezoning to mine for a variety of minerals on its property. In the circumstances it is respectfully submitted that the land does not form part of areas previously excluded, municipal land, a disadvantaged area, informal area, or homeland which requires development imbalances and access to land by disadvantaged communities and persons to be redressed nor the upgrading of informal areas.

- **The principle of spatial sustainability.**

The proposed rezoning will contribute to the local Gross Domestic Product and the construction industry. Job opportunities will be created by the mining operation throughout the establishment to commissioning phases of the proposed mine. In creating these job opportunities these employees will in turn be spending their income in the surrounding towns and directly contribute to the local economy. The mining for the specified minerals from the specific portion of the property will not entail the establishment of any new permanent infrastructure nor will there be a change in the nature of the property, due to the pre-existing excavated mine area.

Existing infrastructure as found on the farm will be used. In this instance the operation will have virtually no effect on social services and the provision of infrastructure. Furthermore, municipal engineering services will not be impacted upon.

- **The principle of efficiency.**

The mining of the minerals will allow for the maximum optimisation of the available resources on the property in the sense that the property land use can be diversified to include processing of raw materials. Furthermore, no further permanent infrastructure will be required. There will be no negative social impact, rather the operation will allow for potential job creation and diversification of services in the area. Decision making procedures by the relevant authorities in relation to environmental impacts ensure that proper mitigation measures are in place to avoid and minimise potential impacts.

- **The principle of spatial resilience.**

The implementation of mitigation measures prescribed by the FBAR and EMPR, coupled with environmental control inspections will guard against possible environmental shocks. In any event the proposed operation is deemed to have impacts of a low significance. Having regard to the relevant facts and circumstances pertaining

to the property and the proposed land use it is unlikely that there will be a negative effect on surrounding communities as a result of an environmental shock.

- **The principle of good administration.**

The applicant will comply with legislative and other relevant requirements applicable to the land use and land development and also the legislation applicable to environmental management to ensure that the proposed operation is conducted with good governance.

3. Zoning

3.1 Current Zoning

The current zoning is Agriculture as confirmed by Ms Brunings of the Langeberg Local Municipality.

“agriculture” – Agricultural Zone I

Land use description: “*agriculture*” means the cultivation of land for raising crops and other plants, including plantations, the keeping and breeding of animals, birds or bees, stud farming, game farming, a riding school or natural veld, and—

(a) includes—

- (i) the harvesting, packing, cooling, storing, sorting, packing, and packaging of agricultural produce grown on that land unit and surrounding farms;
- (ii) harvesting of natural resources limited to living organisms for delivery to the market;
- (iii) agricultural buildings or infrastructure that are reasonably connected with the main farming activities, including a dwelling house, one farm manager’s dwelling and agricultural worker accommodation at an appropriate scale relating to the proposed farming activity.
- (iv) telecommunication and electricity transmission lines;
- (v) rooftop base telecommunication stations;
- (vi) a crèche;
- (vii) a packing store; and

(b) does not include aquaculture; intensive horticulture; an abattoir, a farm shop, an animal care centre, any mining activity, utility services and renewable energy structures for commercial purposes.

3.2 Rezoning

The proposed rezoning would be from Agriculture to Industrial Zone III. Industrial Zone III allows for the following –

“Industrial Zone III”

“The objective of this zone is to provide for the use of land for the extraction of minerals and raw materials and, to a limited extent, associated business operations. This zone is intended for operations of a more permanent nature as opposed to temporary, short-term mining or prospecting activities.”

“mine”

Land use description: “*mine*” means any operation or activity for the purposes of winning any mineral on, in or under the earth, water or any residue deposit, whether by underground or open working or otherwise and includes any operation or activity incidental thereto.

Therefor the application for the proposed sand mine falls within the ambit of Industrial zone III as per the Zoning Scheme regulations of the Municipality.

3.3 Impact on Spatial Development Framework - Integrated Development Plan

Development Impact

The Integrated Development Plan (IDP) for the Langeberg Local Municipality (2017-2022) has strategic outcomes that the Municipality would like to achieve. These outcomes address aspects such as Housing, Basic service delivery, Local Economic Development, Effective Administration, sound Financial Management and Effective Stakeholder engagements. Through the proposed mining on Farm Kleinfontein 367, contributions are either directly or indirectly made to some of the mentioned strategic outcomes.

The nearest township to the proposed mining area is Stormvlei, located within Langeberg Local Municipality area. Mining industry contributes about 40 % to the local GDP and establishment of operations will attract businesses to invest within the surrounding area, and as a result contribute to infrastructure developments. This will improve social cohesion for the local communities. The spatial structure is characterised with a business core branching out along the main roads surrounded by a strong residential component.

Basic Service Delivery: Maintenance of Infrastructure

Maintenance of infrastructure will inevitably also lead to various construction projects or upgrade of road systems. This will lead to creation of job opportunities and stakeholder involvement in the area. Ultimately enhancing the viability of the area and enhancing opportunities where there previously was none.

Local Economic Development

Through not only the employment of workers at the mine, but also the support the mine give to the subcontractors and the livelihoods of their employees, the mine directly contributes to the livelihood of area. One also needs to consider that money earned at the mine is also money spent within the Langeberg Municipal area, thus further contributing to the local economy.

Effective Stakeholder engagements

The proposed mining operation has confirmed in the FBAR that only local service providers and labour from surrounding areas will be used. This in turn creates opportunities for local business and communities to get involved and grow their customer base as well as provide for their families.

Environmental Impact

The proposed mining area has already been severely disturbed by previous mining activities that was established on this farm portion. No rehabilitation was previously done. The proposed mine will also incorporate the rehabilitation of the previously disturbed areas in their rehabilitation programme and in such away also address the disturbance of the past activities. The Department of Mineral Resources are also tasked with the monitoring of the conditions set out by the FBAR and EMPR for the proposed mining operation. A summary of the key findings for the environmental impact of the proposed mine can be found on page 81 of the FBAR in Table 11.1, most impacts have been noted as insignificant or minor negative. This confirms that the proposed mine will barely have an environmental impact.

In conclusion, the FBAR listed activities has been checked and areas have been scaled and located appropriately to avoid unnecessarily triggering of listed activities. We therefor do not foresee any negative impacts on either the SDF or IDP through the establishment of the proposed mine.

4. Final Basic Assessment Report (FBAR) and Environmental Management Programme (EMPR)

The Final Basic Assessment Report and Environmental Management Programme has been submitted to the Department of Mineral Resources for their recommendations and approval. The approval of the FBAR and EMPR will address the specific conditions pertaining to the environment, social and rehabilitation implications of the proposed mine.

Due to the nature of the area affected by the proposed mining application, extensive specialist studies were undertaken to address the perceived future concerns. These studies have all been included in the FBAR and EMPR document.

A copy of the FBAR and EMPR document and its attachments has been attached to this report under Annexure H by use of a flash drive for ease of reference.

4.1 Basic Assessment Report – Environmental Impacts

During the environmental impact assessment process, the feasibility of the proposed activity was assessed to identify environmental impact that would be deemed so severe as to prevent the activity from continuing or warrant a site alternative. The outcome of the assessment showed that the chosen site (5ha) and the implementation of the proposed mitigation measures and monitoring programmes in the FBAR, that no fatal flaws could be identified which would prevent the activity from continuing.

The following is in short, a summary of conclusions from the FBAR, for more detail please refer to the specific discussions in the FBAR.

The FBAR addresses the following impacts in detail with regard to the proposed rezoning area:

- **Topography**

The area is characterized by an undulating landscape with associated moderate to steep slopes, transformed and degraded non-perennial drainage lines is present within the site. Due to the pre-existing mine the topography of the area has already been severely changed. The use of the existing mine for expansion would thus further build upon the pre-existing already disturbed topography. The layout will also simplify the configuration of the final mining area in line with rehabilitation to be done.

FBAR Reference

Pages: 40, 50, 103

Tables: 8.1(pg.45); 7.1(pg.96)

Appendixes: E – Geohydrological Study

- **Topsoil**

An estimated area of 0,05ha will be utilized for topsoil stock piling after removal of the topsoil in the initial establishment and operational phases. This stockpile has been indicated to be of long term in nature to assist in future rehabilitation of the mined area. Detail discussion regarding topsoil handling can be found on page 69 of the FBAR, with topsoil monitoring discussed on page 110 of the FBAR. The rating of loss of topsoil is low to medium due to the concurrent rehabilitation and monitoring to take place.

FBAR Reference**Pages: 17, 22, 65-66, 69, 103, 110****Tables: 8.1(pg.45); 8.7(pg.58); 9.1(pg.77); 11.1(pg.81); 5.1(pg.91); 6.1(pg.92), 10.1(p.112)****Appendixes: E – Rehabilitation Plan**

- **Air Quality and Manganese mining**

Dust

Due to the inherent nature of mining, dust will be generated during various processes from transport to crushing and screening. A Dust Management Plan has been put into place to address this. This looks at aspects such as monitoring points, assigned times of measurement, record keeping and assigned personnel to manage the plan. The mine will employ an Environmental Control Officer that will monitor and report on the dust fall out and mitigation measures. The assessment of the impact of dust fall out on Air quality within the FBAR has been indicated at low to negligible outcome for dust generating activities that was identified. Initial comments were also requested from Mr Dave van Schalkwyk via email on the 1st of April 2022. No response has yet been received from him. Please see proof attached in Annexure F.

Manganese Mining

Manganese compounds are less toxic than those of other widespread metals, such as nickel and copper. However, exposure to manganese dusts and fumes should not exceed the ceiling value of 5 mg/m³ even for short periods because of its toxicity level. Manganese poisoning has been linked to impaired motor skills and cognitive disorders. There will be measures put in place to manage the exposure such as PPE and monitoring of the fall out of the mining activity.

Advice and management procedures have been gained from Dr Michael West, MBChB, who is an expert in the field of Health and Safety. Please find attached in Annexure F a document by Mr Johan West of Green Africa Group pertaining to the management of the manganese toxicity for the proposed mine. This outlines the detail and care with which the commodity will be managed to protect those working at the mine in line with the prescribed management practices of Dr Michael West.

FBAR Reference**Pages: 53-57; 117****Tables: 8.1(pg.56); 9.1(pg.77); 11.1(pg.81); 5.1(pg.91); 7.1(pg.96); 8.1(pg.97)****Appendixes: E – Dust Management Plan**

- **Noise**

The potential impact of the mining activity on the noise ambiance of the area is deemed to be of low to medium significance as discussed in section 8.7 on page 58 of the FBAR. Due to the mine location the noise created by mining and associated activities will not have an impact on any surrounding neighbours. Noise handling and Noise monitoring is respectively discussed in further detail on pages 67 and 109 of the FBAR. Noise created by blasting within the mine area will be managed and monitored. Blasting days will be advertised and neighbours will be informed of the date and time of the blast. The blast will be of short duration and noise will be limited by the use of noiseless initiation systems. Please see further detail regarding blasting in the Blasting Impact Assessment.

FBAR Reference**Pages:117****Tables: 9.1(pg.77); 5.1(pg.91); 6.1(pg.92); 7.1(pg.96); 10.1(pg.110); 10.2(pg.113)****Appendixes: E – Blasting Impact Assessment**

- **Visual Impacts**

The potential visual impact is deemed to be of medium significance based on the small scale of the proposed operation, proposed progressive rehabilitation, as well as the fact that no new infrastructure will be established. Should the rehabilitation measures be implemented very little residual visual impact is expected upon closure of the mine.

FBAR Reference**Pages: 66****Tables: 8.7(pg.58); 8.10(pg.70); 7.1(pg.96)****Appendixes: E - Rehabilitation Plan**

- **Hydrology, Stormwater and Water Use**

Hydrology and Stormwater

The applicant has done extensive specialist studies to accommodate the hydrology and storm water management of the proposed mining permit area. Please see these studies as mentioned below attached under the FBAR document.

With the implementation of the suggested recommendations in the studies the impact on hydrology and storm water runoff remains low to medium significant.

Management will include daily and quarterly compliance monitoring by ECO, water sampling and testing, the creation of trenches and contours to manage the flow of the water and management of roads to minimize any water loss due to runoff.

Water Use

No water will be used in the mining process. Non-potable water will however be used for dust suppression. An arrangement has been made with a subcontractor to provide water for this purpose. See document attached for TVM Konstruksie in Annexure F. Drinking water will be bought and brought to site.

The landowner is currently applying for a water use license as per the request of the Department of Agriculture. Mr Dirk van Driel will be managing this process, please see email correspondence received from him as confirmation attached in Annexure F.

FBAR Reference**Pages: 67, 68, 90, 109****Tables: 8.1.2(pg.48); 8.7(pg.58)****Appendixes: E - Geo-hydrological Study / Surface Water study / Freshwater Report**

- **Cultural and Heritage Environment**

The HIA concluded that the earmarked area is not a sensitive heritage environment and that with the possible exception of palaeontological material, impacts on heritage resources arising from expanded mining operations are unlikely. See letter attached from Heritage Western Cape in Annexure F.

- **Roads**

Existing access roads will be utilized by the proposed mining activity. Access roads exist on site on the following coordinates S:34° 05' 05.48 E:20° 12' 33.12. Any additional temporary roads created in the mining site will be rehabilitated on completion of the Mining Permit operations, to the satisfaction of the relevant landowner. Due to access provided over Rem/243, an agreement will be needed to establish right of way. The landowner is currently addressing this matter and will provide the information to the municipality upon receipt thereof.

The Department of Transport and Public works was consulted in the FBAR process, and their comments has been attached in Annexure F, they do not have any objection to the proposed mine.

The Department has however indicated that the following will need to be addressed before mining can start:

- Upgrade of water course crossing on minor Road 4553.
- Grading of existing roads to be undertaken.
- Dust control measures to be implemented.

The above list was included in the FBAR and will be adhered to.

A Traffic Impact Assessment was done for the area and the conclusion was that the trip generation of the mine in the various phases of lifecycle remains negligible. It will have no significant impact on traffic operations nor the safety of the intersection of N2-4 and OP 4553, provided recommended restrictions pertaining to truck sizes are adhered to.

FBAR Reference

Pages: 18, 67, 69, 102, 110

Tables: 8.7(pg.61); 8.7.1(pg.63); 8.10(pg.73); 6.1(pg.92,94-95); 8.1(pg.97)

Appendixes: E – Traffic Impact Assessment

- **Fauna and Flora**

Due to mining proposed on a previously mined area the impact on Fauna and Flora in the area has been deemed to be low to negligible. The ecology of the 5ha mining footprint will thus not cause any severe disturbance.

The following mitigation measures will be put in place:

- Minimise the size of the excavated sites as far as possible.
- No removal of Indigenous trees.
- Drainage lines, and indigenous vegetation will be avoided.
- Use of existing access road.
- Excavation equipment to be fitted with silencers were possible.
- Prohibit expansion of mine area.
- No hunting or poaching of animals.

A Ecological Report was also undertaken to examine the area. This report also deemed the impact of the proposed mining to be low since the area has already been disturbed by previous mining activities.

FBAR Reference

Pages: 43, 69

Tables: 8.10(pg.71); 9.1(pg.77); 10.1(pg.78); 11.1(pg.81); 5.1(pg.91); 6.1(pg.93)

Appendixes: E – Ecological Report; Rehabilitation Plan

Please refer to FBAR reference points at each section for more detail and the specialist reports on these subjects.

5. Conclusion

The following is in short, a summary of this report and the conclusions made.

- This report is to apply for a rezoning over a 5ha piece of land situated on Portion 6 of the Farm Kleinfontein 367.
- Application is being made to address the proposed mining for the following minerals: Vanadium ore, Tin ore, Silver ore, PGMs, Nickel ore, Manganese ore, Copper ore and Chrome ore.
- All available information, consultation and documents has been included in this motivational report to the application.
- Pre-Submission consultation was had with the Langeberg Local Municipality.
- The report has been structured around the specifications as set out by Section 65 of the Municipal By-Law (7461/2015) of the area, also considering Section 42 of the Spatial Planning and Land Use Management Act (Act 16 of 2013) and Chapter 5 and 6 of the Western Cape Land Use Planning Act (Act 3 of 2014) and Section 10 of the Western Cape Land Use Planning Regulations, 2015.
- Zoning – The current zoning is Agriculture.
- Rezoning – Industrial Zone III – Application is made to address the proposed mining operation.
- Mine Permit – application has been made to the DMR for a mine permit for 5ha on the previously mentioned property, copy to be provided once granted by DMRE.
- FBAR and EMPR – Section 4

The FBAR and EMPR address the mining activities as stated earlier in this document. These documents also prescribe the environmental management, rehabilitation, and closure conditions regarding the proposed expansion of the mine right area. Monitoring and compliance of the natural habitats as well as mining progression and expansion will be done by the Department of Mineral Resources in line with the conditions that would be proposed for the expansion area as set out in the final granted Environmental Authorisation. Further applicable conditions that may come forth from this application by the Municipality and other Government Departments will also be considered and implemented.

In conclusion, the existing quarry on the farm, the low to no impact of the mining activity on the surrounding natural habitat, the proposed management and rehabilitation of the area through the FBAR and EMPR indicates that the proposed rezoning of the farm portion is in line with the activities found in the area and will positively contribute to the local economic atmosphere and upliftment of the communities surrounding the mine.

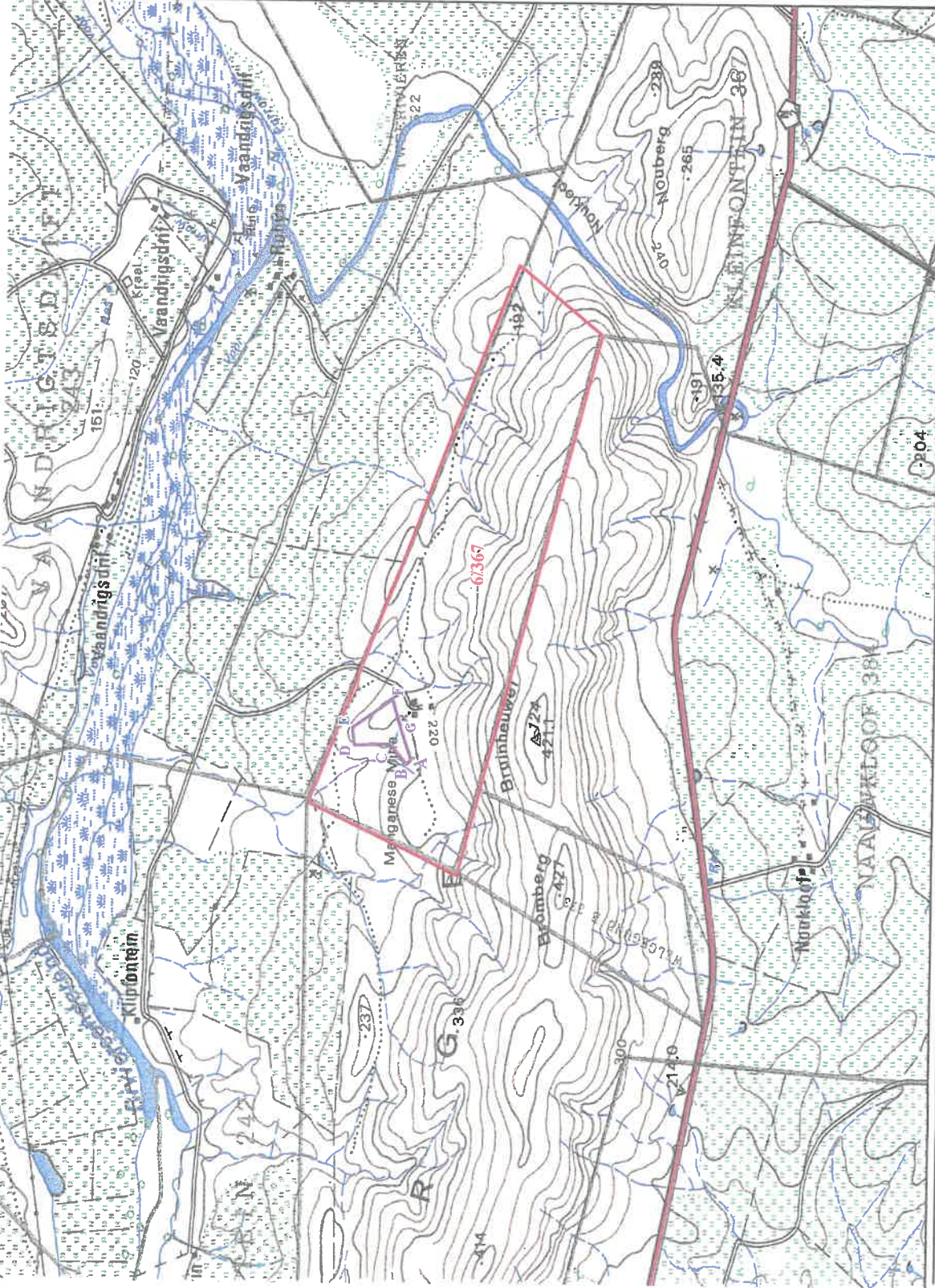
LEGEND



- National Freeway; National Route
Aerial Route
Main Road
Secondary Road; Bench Mark
Other Road; Bridge
Track and Hiking Trail
Railway; Station or Siding
Other Railway; Tunnel
Embankment; Cutting
Power Line
Built-up Area
Buildings; Ruin
Post Office; Police Station; Store
Place of Worship; School; Hotel
Fence; Wall
Windmill; Monument
Communication Tower
Mine Dump; Excavation
Trigonometrical Station; Marine Beacon
Lighthouse and Marine Light
Cemetery; Grave
International Boundary and Beacon
Provincial Boundary
Game, Nature Reserve & State Forest Boundary
Perennial River
Non-perennial River
Non-perennial Water
Dry Water Course
Dry Pan
Marsh and Vlei
Pipeline (above ground)
Water Tower; Reservoir; Water Point
Coastal Rocks
Prominent Rock Outcrop
Erosion; Sand
Woodland
Cultivated Land
Orchard or Vineyard
Recreation Ground
Row of Trees

The area indicated in A to G is a portion of portion 6 in the Farm Kleinfontein 367 Swellendam. The area covers 5 hectares, situated in the Magisterial District of Langeberg in Western Cape Province.

Orren Capital (Pty) Ltd is the applicant for the mining permit in respect and in terms of Section 24 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002), excluding any area within 100 metres of any public road, railway, cemetery, residential area



APPLICANT

ORREN CAPITAL (PTY) LTD

Company Rep:
Certified Surveyor:
Regional Manager:
Date :

COORDINATES

NATIONAL GRID DEGREE SQUARE 3420AA

Labels	X	Y
A	20,204879	-34,084319
B	20,204878	-34,084139
C	20,205823	-34,083283
D	20,205602	-34,081277
E	20,206654	-34,081103
F	20,208133	-34,083169
G	20,206633	-34,083666



0 500 1 000 2 000 Meters

Tracy Brunings

From: Tracy Brunings
Sent: Monday, 31 October 2022 13:00
To: 'Tplan'
Cc: Langeberg Municipality
Subject: KLEINFONTEIN 367/6 SWELLENDAM: ACKNOWLEDGEMENT OF RECEIPT OF APPLICATION AND REQUEST FOR ADDITIONAL INFORMATION IN TERMS OF THE LANGEBERG LAND USE PLANNING BYLAWS (PN264, 30 JULY 2015)

Hello Marie,

1. Receipt of the following application is herewith acknowledged.

Application Type : Rezoning ptn Kleinfontein 367/6, Swe from Agricultural I to Industrial III.
Property description : Portion 6 of Kleinfontein 367, Swellendam
Application received : 18 October 2022
Langeberg's reference : 15/4/14/7

2. Please provide a summary of the existing and proposed services to the site (Although reference is made in the motivation report to numerous sections in the FBAR, some of which cover the provision of services to the site, not all parties will have access to the full BAR and specialist reports and/or the time to scan all NEMA documents for the servicing implications):

- Water supply: Estimated demand for water? Any on-site water sources?
- Number and capacity of existing and / or proposed on-site water tanks? Source of water from proposed water contractor?
- Sewage disposal: Existing and proposed provision for ablution facilities on-site? Location and capacity of existing / proposed sewer tank/s?
- Stormwater Management Plan - with reference to the Infrastructure Plan (which shows clean water drains, pollution control dam etc.) (P67 of the BAR and p35 (17.4) of the Aquatic Biodiversity Impact Report also refer to the need for stormwater management).

(Note: The Hydrological report, p23, appear to include reference to catchment areas and Mun areas which are not applicable to this site.)

- Electricity requirements: Source? capacity required?

3. The plans must show the eskom servitudes, and the proposed access route.

Regards,

Tracy Brunings Pr.Pln A/951/1997
PROFESSIONAL TOWN AND REGIONAL PLANNER
TOWN PLANNING DEPARTMENT



3 Piet Retief Street, MONTAGU 6720
Tel: 023 614 8001 Faks: 023 614 1841

✉ tbrunings@langeberg.gov.za www.langeberg.gov.za (Website)

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18 November 2022

REF: KLEINFONTEIN 367 REZ/APP

MUNICIPALITY REF: 15/4/14/7

LANGEBERG LOCAL MUNICIPALITY

3 Piet Retief Street

Montagu

6720

Contact Number: 023 614 8001

ATT: TRACY BRUNINGS

RE: REQUEST FOR INFORMATION - FARM KLEINFONTEIN 367, SWELLENDAM DISTRICT.

Dear Madam

Your email received on 31st of October 2022 has reference, herewith the information as requested in short summary.

- **Water supply**
As stated previously there are no water to be used in the mining process and main water needs will be for dust suppression and potable water for employees. The estimated demand for water will be 40 000L per day. The water will be brought to site initially. There is a borehole on the property that could be utilized in future. The borehole will be tested in November and a water use license is being applied for currently so that this water could be used for domestic use.
- **Number and capacity of on-site water tanks.**
There are 4 x 10 000L water tanks on site. Please see image attached.
- **Source of water from proposed water contractor.**
Water will be obtained from the Swellendam Municipality as per previous agreement. TVM construction will be contracted to bring the water to site. See email correspondence with municipality and proposed agreement with TVM construction attached.
- **Sewage disposal: Existing and proposed provision for ablution facilities on-site.**
Currently there are 2 toilets in the site office that can be used and a further 2 chemical toilets will be placed on site that will be serviced on a weekly basis. Please see quotation from Coastal Hire to provide this service attached. Location of chemical toilets to be confirmed. There are no sewerage tanks on site, there is a French drain system in place for the existing toilets in site office.

- Stormwater Management Plan – Please see document included with discussion on Storm Water.

- Electricity requirements

There is a 3 Phase 380V Eskom Transformer on site which will be used to supply the site with power as soon as reconnection is arranged with Eskom at the Swellendam Municipality. An application has been logged and we are awaiting a reference number. Please see image for existing transformer attached. The estimated daily use once site is operational will be between 200 – 250KVA.

Please find herewith also amended Land Use plan indicating the location of the Eskom servitude and access points to farm and mine area..

If you have any queries, please do not hesitate to contact me directly.

Kind regards

Marie Terblanche
SACPLAN: A/3033/2021

10 000L Water Tank



EMAIL CORRESPONDENCE WITH SWELLEDAM MUNICIPALITY RE SUPPLY OF WATER

7/22/22, 3:18 PM

Gmail - Re: BULK WATER



thato Ramoraswi <tprmining@gmail.com>

Re: BULK WATER

Fritz Orren <fritz@orrencap.co.za>

To: Sophiane Baardman <sophiane@swellendam.gov.za>

Cc: thato Ramoraswi <tprmining@gmail.com>

Fri, Jul 22, 2022 at 2:29 PM

Good day Sophiane

I trust you're well

Thank you for your assistance regarding the purchasing of the non potable water we will collect it as soon as we are ready.

In the meantime find attached proof of payment for your records

Warm regards

Fritz Orren

T: +27 (0)11 477 2170

M: +27 (0)81 315 1046

info@orrencap.co.za

www.orrencap.co.za

21 Banfield Road, Industria North, Roodepoort

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On 22 Jul 2022, at 12:30 PM, Sophiane Baardman <sophiane@swellendam.gov.za> wrote:

Beste Fritz

Die bank besondehede soos telefonies bespreek is as volg: Absa 239 056 0039 en verwysing as volg: Fritz 20kl water 20 eek

Een kl water is R16.10 x 20 = R322.00. (Grootmaat water vanaf brandkrane)

<https://mail.google.com/mail/u/1/?ik=1845edb10e&view=pt&search=all&permmsgid=msg-f%3A1739056971165048936&simpl=msg-f%3A173905...> 1/2

Indien enige verdere navrae kan u my gerus weer kontak.

Vriendelike Groete

<image001.jpg>

4 attachments



image001.png
5K

image002.png
1K

image003.png
1K

Payment Notification.pdf
74K

If: Demand = 40kl water p.d.

$R16.10 \times 40 = R644 \text{ p.d.}$

$\times 20 \text{ working days}$
 $= \pm R12\,880 \text{ p.m. for Water}$

+ transportation costs P.T.O.

CONTRACTER FOR WATER TO SITE



Tel. No: 028-514 2975
 VOIP No: 028 007 0270
 Thys Sel: 082 570 6330
 Posbus 266 SWELLENDAM 6740
 Stasiesstraat Industriële Gebied SWELLENDAM
 ePos: info@tvmcivils.co.za

(EDMS) BPK

REG. NO: 2007/013264/07

NAAM EN ADRES VAN KLIËNT:

YNF.Engineering
 Att: Fritz Orren
 epos: Fritz@orrencaop.co.za

KWOTASIE NO: 2022-164

DATUM: 21 07 2022

KWOTASIE AANVAAR:

GETEKEN ~ KLIËNT:

KWOTASIE ~ BESKRYWING

R BEDRAG

No provision is made for PPE or specific Health & Safety requirements in this quote.

Please specify site specific regulations and quote will then be adjusted accordingly.

Kwotasie vir die huur van die 11000 Lt Man Watertrok.

Huur van Watertrok @ R700/uur [minimum 6 ure per dag] (BTW uitgesluit)

Vestiging en Devestiging van Watertrok @ R30/Km (BTW uitgesluit) vir Teerpad

Vestiging en Devestiging van Watertrok @ R36/Km (BTW uitgesluit) vir

Ekstra per Km tarief sal gehef word indien trok meer as 5Km weg moet ry om vol water te maak.

Vestiging en Devestiging van Operateur met Diesel per bakkie na en van terrein elke dag @ R8,50/Km (BTW uitgesluit)

As ons die trok moet vol maak by die munisipaliteit is dit R400 vir 11000 Lt

SUB TOTAAL

R -

VAT

15.00% R -

GETEKEN: M.M. ad Marnie

TOTAAL

R -

Voorwaardes

Hierdie kwotasie is geldig vir slegs 30 dae.

Kwotasie is onderhewig aan beskikbaarheid en prysstygings van ons verskaffers.

Deposito kan vereis word by aanvaarding van kwotasie.

Reëling vir betaling moet vooraf uitgeklaar word.

QUOTATION FROM COASTAL HIRE FOR CHEMICAL TOILET SUPPLY AND SERVICE



Russel Street Swellendam Industria
Tel: 028 514 3709
P.O Box 159 Swellendam 6740
Email: hire.swd@coastalhire.co.za Website: www.coastalhire.co.za
Reg No: 2018/243355/07 VAT: 4730285790

Q U O T A T I O N

Thanks for allowing Coastal Hire to supply you with the following:

Quote #...H0630

Quote done by: Mista

Customer Details:

Company		25Km outside Swellendam towards
Contact Person	Mr Fritz Orren	Riviersonderend on a farm
Address		Vaandersdrift turnoff
Supply Only	No	
Supply & Delivery	Yes	Date: 27/5/2022
Contact number:	081 315 1046	Email: fritz@orrencap.co.za

Site Details:

Product	Qty	Days	Price	Total Price	Total
Chemical Toilet (Per Month)	2	1	130.44	260.88	
Toilet Services (1x per week each)+end of hire services	10	1	565.22	5652.20	
Delivery	1	1	450.00	450.00	
Collection	1	1	450.00	450.00	
				6813.08	R 6 813.08
					Sub Total R 6 813.00
					Vat 15% R 1 022.00
					Total R 7 835.00

PAYMENT TERMS:

- Quotations are valid for a period of 15days
- COD: Full payment on acceptance of quote
- Deposit for COD client 100%
- Banking details: Miekana Hire PTY LTD v/a Coastal Hire Swellendam,
FNB Current acc. no: 62812096536
Branch code: 200513
- Please forward proof of payment for confirmation of accepting quotation.

Quote Accepted By: _____ Date: _____
For any further enquiries please contact Johan Schoeman – 082 823 2250

Kleinfontein Mine Stormwater Management Summary

A stormwater management system consists of cut-of berms or trenches, or both, on either side of the mining site, with a holding pond at the toe of the mine. Runoff from the mine is collected and diverted to a lined holding / sedimentation pond to prevent it from flowing down the catchment and into the Sonderend River. The collected runoff is allowed to evaporate and the remaining sediments in the bottom of the pond can be collected and disposed of, probably in a licensed water disposal site.

Alternatively, it can be returned to the mining site to be rehabilitated along with the worked-out mine, once it is up for a closure certificate. This is a worse-case scenario, with high levels of measured manganese concentrations in surface and groundwater exceeding critical levels. Amelioration would be triggered only when laboratory analyses reveal that critical levels have been exceeded.

The exact details and design of a storm water management plan and associated infrastructure is a separate exercise, apart from this Fresh Water Report.

Sub-Catchment drainage Lines

The drainage line of Sub-Catchment No. 1 (Figure 14 in the WATSAN AFRICA Freshwater Report) is impacted, mainly by the large scale orange groves that has been planted right up to the riparian zone. In most places, the orange trees are separated from the drainage lines with a row of beefwood trees. Surprisingly, the riparian zone has survived the onslaught and is still in a reasonable condition (Figure 14), with a dense stand of among other sweet thorn (*Vachellia karoo*) and taaibos (*Searsia crenata*).

Higher up the bank, some of the original terrestrial vegetation was left, with a mature stand of aloes and dense bush. The very upper catchment is near-pristine. Lower down the slope, forestation occurred, with a patch of blue gum trees.

Still further down, the land is less impacted, with some natural vegetation, before the drainage line enters the orange tree orchards.

Where the drainage line joins the Sonderend River, a large stand of mature blue gum trees obliterates the confluence.

Further reading

Annexures to the BAR:

- Hydrological Report
- Surface water Report
- Freshwater Report.

Johan West

Managing Director

<https://www.linkedin.com/in/johan-west-2976ba144/>

www.GreenAfricaGroup.com

www.GreenAfricaEnergy.co.za



Prepared for: Orren Capital (Pty) Ltd
Prepared by: TPR Mining Resources Pty Ltd

2022

Mobile toilets & sanitation	0,07 Ha	X	GNR 327 Listing Notice No:1 (Activity 21)
Mobile Crushing and Screening plant	0,8 Ha	X	GNR 327 Listing Notice No:1 (Activity 21)
Access road	380m 2,1m wide	X	GNR 327 Listing Notice No:1 (Activity 21)

4.2 Description of the activities to be undertaken

A Vanadium ore, Tin ore, Silver ore, PGMs, Nickel ore, Manganese ore, Copper ore and Chrome ore mining operation can be viewed as being made up of some, or all, of the following sub-activities:

- Maintenance of Access road
- Removal of topsoil and overburden and stockpiling.
- Maintenance of existing of mobile office, mobile toilets & sanitation
- Maintenance of existing pollution control dam
- Blasting
- Excavation of an open cast (including strip 1, 2)
- Temporary stockpiling of material (Topsoil stockpile, overburden and ROM)
- Loading and hauling to the stockpile area and
- Rehabilitation

4.2.1 Description of Site Activities

The type of mineral to be mined is Vanadium ore, Tin ore, Silver ore, PGMs, Nickel ore, Manganese ore, Copper ore and Chrome ore. The method that will be employed is a very basic form of open cast mining, and a 5 ha area will be demarcated for mining activities. Subsequent mining and blasting of the orebody utilising a truck and shovel operation will be conducted. A front-end loader will be utilised to load the material of approximately into haulage trucks to the end user. The project infrastructure and activities will include site clearance, removal of topsoil and overburden, blasting and stockpiling, mobilisation of equipment and preparation of area for mining, excavation of an open cast, loading zone,



loading and dust control, hauling and transporting of ore, ablution facilities and rehabilitation of site.



Figure 4.1: An illustration of a Vanadium ore, Tin ore, Silver ore, PGMs, Nickel ore, Manganese ore, Copper ore and Chrome ore mining method

4.2.1.1 Maintenance of Access Roads

Access roads exist on site on the following coordinates S:34° 05' 05.48" E:20° 12' 33.12". Any additional temporary roads created in the mining site will be rehabilitated on completion of the Mining Permit operations, to the satisfaction of the relevant landowner.

4.2.1.2 Water Supply

It is anticipated that water will be brought to site. The water will be sourced from the water supply entrepreneurs in a form of a contract of which there will be appointed once the mining operation commences. It will be trucked in. An on-site water storage tank will be required for potable water supply to employees and workers. Additional water will also be required for dust suppression in order to prevent dust pollution on the untarred temporary roads. In this regard no surface or ground water will be utilized during the mining operation.

4.2.1.3 Temporary Ablution and maintenance of existing offices

Ablution facilities will be required on site. This may involve the installation of drum or tank type portable toilets. The toilets should be emptied twice every week through the services

of a registered sewage waste service provider in order to prevent ground or surface water pollution. The ablution facilities must be provided at a ratio of 15 :1, i.e. 15 people per 1 toilet. Since the mining operation will take place on a previously mined area so there is an existing site office and it is established distant from the water drainage lines.

4.2.1.4 Pollution Control Dam and dirty water trench

The existing pollution control dam will be utilized for run-off of surface water and stockpile area through the dirty water trench surrounding the mining site and discharges into the dam, the purpose of the PCDs will also conduct the pollution containment, surface and groundwater diversion by installing a liner inside the dam and abstraction from the plant area. It also decreases the pollution effect in the down-stream part by lowering the pollution load coming from the operation. The water in the Pollution Control Dam will not penetrate to the ground due to the liner material installed inside the dam. The water in the PCD will not be treated but will be allowed to evaporate.

The size of the existing Pollution Control Dam is as follows: L=37m, B=22m, Depth=5m



Figure 4.2: Illustration of existing pollution control dam

4.2.1.5 Blasting

Blasting is a process of chemically and physically utilizing explosives to break the overburden. The blasting techniques that will be used will be air blast which is the air pressure wave generated by a detonation. This process goes through a blast design prior to conducting the blasting activities. In this case, according to the blasting engineer: It is

assumed that overburden holes and mid burden blasting of 311 mm will be used. Mining depth has been used to calculate the charge mass per hole for 311 mm, 250 mm and 171 mm diameter holes and the vibration (PPV) at different distances from the blasting. The vibration amplitude of 7 mm/s, which is a maximum for human concern, but is well below damaging levels for brick and mortar houses and any other structures . The curves are useful because they show how the limiting vibration of 7mm/s extends further as overburden depth increases.

4.2.1.6 Excavation of Vanadium ore, Tin ore, Silver ore, PGMs, Nickel ore, Manganese ore, Copper ore and Chrome ore

This is where Vanadium ore, Tin ore, Silver ore, PGMs, Nickel ore, Manganese ore, Copper ore and Chrome ore is excavated using equipment's such as a truck and shovel. A front-end loader will be utilised to load the material into haulage trucks and then be transported to the crushing and screening plants.

4.2.1.7 Crushing and Screening of the commodities

Crushing is a dry process which involve particle size reduction of large material into smaller rocks. Equipment's used for crushing of commodities are jaw crusher or cone crusher. Screening is a practice of taking granulated ore material and separating it into multiple grades by particle sizes so commodities will be screened and stockpiled in the mining area.



Figure 4.3: Illustration of Crushing and Screening of commodities

Figure 4.4: Illustration of rehabilitation before and after the mining activities

Phase	Activity	Expertise Required	Duration
Construction	Logistical consultation with land owner. Maintenance of Access road Maintenance of existing office and security dwellings Establish mobile ablution facility, Maintenance if existing pollution control dam and dirty water trench, Construction of berm	Project Manager Contractor	2 Months
Operational	Minimal clearance of vegetation Mining area (Open-cast) Temporary stockpiling of material (Topsoil stockpile, overburden and ROM) Loading and hauling to the stockpile area and Rehabilitation	Project Manager Surveyor	20 months
Decommission and closure	Removal of mine infrastructure Rehabilitation of excavations and disturbed land Re-vegetation of land Closure report and application for closure certificate	Contractor Environmentalist	2 Months
Post closure monitoring	Monitor rehabilitation sustainability and liaising with land owner on matters requiring action.	Project manager	2 years

8.4 ENVIRONMENTAL ATTRIBUTES ASSOCIATED WITH THE ALTERNATIVES

8.4.1 Baseline environment

8.4.1.1 Type of environmental affected by the proposed activity

(a) Topography

The area is characterized by an undulating landscape with associated moderate to steep slopes, a transformed and degraded non-perennial drainage lines is present within the site.

The topography of the site will change with the proposed development. According to the Ridges Policy: Development must adhere to the restrictions that are present in the Policy and that development must not occur on slopes of 5°. The topography of the project area is situated in a concave topography ranging from 650 - 960 mamsl as displayed by the contour lines on the topology map below. The map is also showing that the project area is in a mountainous area.



Figure 8.1: Description of site terrain and vegetation

(b) Climate and Rainfall

Swellendam and Stormsvlei normally receives about 462mm of rain per year, with rainfall occurring throughout the year. The chart below (lower left) shows the average rainfall values for

zones in this area. The potential contaminants for the mining of manganese is minimal and can be controlled easily as this activity will only take place for a short period of time. Fuel and oil handling facilities are likely sources of hydrocarbon related contaminants. Oils, grease, and other hydrocarbon products (such as petrol and diesel) handled in these areas may contaminate the environment by spillages and leakages (e.g., from drill rigs). Absorbent Spill kits will be made available near the drill rigs during drilling activities. The oil absorbent chemicals will ensure that no oils infiltrate down to the underground to cause any groundwater contamination.

8.4.1.2 Description of the current land uses

The farm Kleinfontein 367 RD is located just outside Stormsvlei. The land is vacant and consist of grazing, farming, agricultural activities and previously mined out of manganese ore and the site consist of infrastructures, stockpiles, mining plant, pollution control dam etc. The applicant intends to prevent impacts on the sensitive areas as we have assessed and identified species and habitats that will be potentially impacted by the proposed activities.

Mining operations will be conducted on portion of portion 6 of the farm Kleinfontein 367 RD. Flora and fauna species that may be impacted by the proposed mining activity will be avoided. The current land-use involves a previously mined area of the manganese commodity on-site and with high density of natural vegetation around the mine of which will not be affected.

8.4.1.3 Description of specific environmental features and infrastructure on the site

North Sonderend Sandstone fynbos are the dominant vegetation type in the region and covers most of the parts of the Municipality. The area consists of shrubs, mountains and sandy soil. (Figure 8-2) reveals an aerial map of the area.

Table 8-1: Impact Assessment – Open cast mining: Operational Phase

Aspect	Impact	Probability	Duration	Scale	magnitude	significance	Mitigation measures
Geology	Collapse of overlying strata and voids creation	Define	Permanent	Local	Low	Low	The direct effect on the geological structure in this situation is not important and regarded as normal consequences of mining. No specific mitigation required (significant will remain low)
Topography	Change in landform (macro perspective)	Define	Permanent	Local	Low	Low	The overall effect on landform is inconsequential. No specific mitigation measures are required (significant will remain low)
	Change to drainage lines due to surface subsidence	Define	Permanent	Local	Moderate	Moderate	Mapping of surface is undertaken (significance will remain moderate)
Soils	Loss of topsoil due to higher erosion potential with increase in surface slopes associated with subsidence	Highly probable	Medium term	Site only	High	Moderate	Reshape the steep slope areas to grades below 4% and re-vegetate disturbed areas (significance will be reduced to low)
	Changes to the soil physical, chemical and biological properties due to loss of topsoil because of erosion and/or rehabilitation of subsided areas	Highly probable	Medium term	Site only	High	Moderate	Enforce conservation tillage and cultivation practice, improve organic status of soils, maintain soil fertility level and curb topsoil loss (significance will be reduced to low)

8.5.2 Assessment of impact related to water management for proposed mine: operational phase

Table 8-1-2: Impact Assessment – Water management related: Operation Phase

Aspect	Impact	Probability	Duration	Scale	Magnitude	Significance	Mitigation measures
Surface water	Floods exceeding the design flood level will impact on water courses	Low probability	Medium term	Local	low	low	Measures for storm water management to prevent overflow are detailed in the EMP (Significance remains low)
	Contamination of surface water by surface run-off	Medium probability	Medium term	Local	low	low	Rainwater falling into the Pit will be redirected off course, seepage cannot be controlled, but management of acid will carried out using measures outlined in the EMP(Significance remains low)
	Reduction in water quantity in the pan used for potable water.	Low probability	Medium term	Local	low	low	Regular monitoring of aquatic life will be conducted (Significance remains low)

8.6 Methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of environmental impacts and risks

8.6.1 Definitions and concepts:

(a) Environmental significance

- The degree of environmental significance depends on the nature of the impact
- The importance is rated in terms of both biophysical and socio-economic values

Determining significance involves the amount of change to the environment perceived to be acceptable to affected communities.

Significance can be differentiated into impact magnitude and impact significance. Impact magnitude is the measurable change (i.e. Intensity, duration and likelihood). Impact significance is the value placed on the change by different affected parties (i.e. level of acceptability) (DEA (2002) Impact Significance, Integrated Environmental Management, Information Series 5)

The concept of risk has two dimensions, namely the consequence of an event or set of circumstances, and the likelihood of particular consequences being realized (Environment Australia (1999) Environmental Risk Management).

(b) Impact Description

It provides the assessment impacts related to mining for the operational phase. The potential geological impact is the collapse of overlaying strata and creation of voids due to the historical high extraction of open-cast mining. Furthermore, due to the extraction of the seam and the removal of associated geological material for the open-cast passages and through fare, voids are created. This results in a permanent effect on geology.

The predicted surface subsidence within historical areas of high extraction will vary between 0.8 and 1.5m. Undisturbed strata or bord and pillar mining areas area highly unlikely to experience subsidence. As in the case of geology, topography is also permanently changed by open-cast high extraction mining. The general landform of the areas within which high extraction mining has taken place will not change from the existing gently sloping landform. In the short term some localised changes to drainage patterns will occur, however on a micro level topography will be punctuated by surface undulations or humps, surface cracking and the formation of sub-surface cracks.



dating. Mn–Cr isotopic ratios reinforce the evidence from ^{26}Al and ^{107}Pd for the early history of the Solar System. Variations in $^{53}\text{Cr}/^{52}\text{Cr}$ and Mn/Cr ratios from several meteorites indicate an initial $^{53}\text{Mn}/^{55}\text{Mn}$ ratio that suggests Mn–Cr isotopic systematics must result from in-situ decay of ^{53}Mn in differentiated planetary bodies. Hence ^{53}Mn provides additional evidence for nucleosynthetic processes immediately before coalescence of the Solar System. The isotopes of manganese range in atomic weight from 44 u (^{44}Mn) to 69 u (^{69}Mn). The primary decay mode before the most abundant stable isotope, ^{55}Mn , is electron capture and the primary mode after is beta decay.

It is therefore clear that there are no imminent danger to humans or livestock as far as radiation is concerned in an open mine situation. Continuous exposure by labourers will be mitigated by safety rules and precautions applied as per the Departments of Labour as well as Mineral Resources. A study in Hungary published 27 Sep. 2010 , The effective dose of miners due to natural radioactivity in a manganese mine in Hungary by N Kávási 1, T Vigh, A Sorimachi, T Ishikawa, S Tokonami, M Hosoda, confirmed that the radiation dose resulting from the consumption of karst spring-water was negligible.

Toxicity

Manganese compounds are less toxic than those of other widespread metals, such as nickel and copper. However, exposure to manganese dusts and fumes should not exceed the ceiling value of 5 mg/m³ even for short periods because of its toxicity level. Manganese poisoning has been linked to impaired motor skills and cognitive disorders.

Permanganate exhibits a higher toxicity than manganese(II) compounds. The fatal dose is about 10 g, and several fatal intoxications have occurred. The strong oxidative effect leads to necrosis of the mucous membrane. For example, the esophagus is affected if the permanganate is



swallowed. Only a limited amount is absorbed by the intestines, but this small amount shows severe effects on the kidneys and on the liver.[86][87]

Generally, exposure to ambient Mn air concentrations in excess of 5 µg Mn/m³ can lead to Mn-induced symptoms. Increased ferroprotein expression in human embryonic kidney (HEK293) cells is associated with decreased intracellular Mn concentration and attenuated cytotoxicity, characterized by the reversal of Mn-reduced glutamate uptake and diminished lactate dehydrogenase leakage.[90]

Environmental health concerns In drinking water

Waterborne manganese has a greater bioavailability than dietary manganese. According to results from a 2010 study (Bouchard, M. F; Sauvé, S; Barbeau, B; Legrand, M; Bouffard, T; Limoges, E; Bellinger, D. C; Mergler, D (2011). *"Intellectual impairment in school-age children exposed to manganese from drinking water"*. Environmental Health Perspectives. 119 (1): 138–143. doi:10.1289/ehp.1002321. PMC 3018493. PMID 20855239.) higher levels of exposure to manganese in drinking water are associated with increased intellectual impairment and reduced intelligence quotients in school-age children. Our geohydrological and surface water reports ensures that that no contamination of drinking water takes place.

Precautions

Manganese compounds are less toxic than those of other widespread metals, such as nickel and copper. However, exposure to manganese dusts and fumes should not exceed the ceiling value of 5 mg/m³ even for short periods because of its toxicity level. Permanganate exhibits a higher toxicity than manganese(II) compounds. The fatal dose is about 10 g, and several fatal intoxications have occurred. The strong oxidative effect leads to necrosis of the mucous



membrane. For example, the oesophagus is affected if the permanganate is swallowed. Only a limited amount is absorbed by the intestines, but this small amount shows severe effects on the kidneys and on the liver.

Generally, exposure to ambient Mn air concentrations in excess of 5 µg Mn/m³ can lead to Mn-induced symptoms. Increased ferroprotein expression in human embryonic kidney (HEK293) cells is associated with decreased intracellular Mn concentration and attenuated cytotoxicity, characterized by the reversal of Mn-reduced glutamate uptake and diminished lactate dehydrogenase leakage.

We acquired the services of renowned Health & Safety expert, Dr. Michael West, MBCh.M to monitor all aspects of health and safety including possible toxicity levels.

Table 8-3 will be used to obtain an overall rating for severity, taking into consideration the various criteria.



Table 8-1-3: Rating of Severity

Type of criteria	1	2	3	4	5
Quantitative	0-20%	21-40%	41-60%	61-80%	81-100%
Qualitative	Insignificant / non-harmful	Small potentially harmful	/ Significant / harmful	Great / harmful	Disastrous harmful
Social/community response	Acceptable/I&AP satisfied	Slightly tolerable/potential objections	Intolerable/sporadic complaints	Unacceptable Widespread complaints	Totally unacceptable/possible legal actions
Irreversibility	Very low cost to mitigate/high potential to mitigate impacts to level of insignificance/easily reversible	Low cost to mitigate	Substantial cost to mitigate/potential impacts to reverse	High cost to mitigate	Prohibitive cost to mitigate or no mechanism to mitigate impact irreversible
Biophysical (Air quality, water quantity and quality, waste production, fauna and flora)	Insignificant deterioration or disturbance	Moderate change/deterioration or disturbance	Significant change/deterioration or disturbance	Very significant change/deterioration or disturbance	Disastrous change/deterioration or disturbance

(I) Determination of Likelihood:

The determination of likelihood is a combination of Frequency and Probability. Each factor is assigned a rating of 1 to 5 as described below and in tables 8-4 and 8-5.

- Dust from roads and land (Please See Appendix E for dust Management Plan)
- Waste Disposal
- Noise
- Water use

8.9 MITIGATION MEASURES THAT COULD BE APPLIED AND THE LEVEL OF RISK

8.9.1 Proposed mitigation measures to minimize adverse impacts.

8.9.1.1 List of actions, activities, or processes that have sufficiently significant impacts to require mitigation

(a) Stripping and stockpiling of topsoil:

- Visual intrusion associated with the establishment of the mining area.
- Dust nuisance caused by the disturbance of the soil
- Noise nuisance caused by machinery stripping and stockpiling the topsoil
- Infestation of the topsoil by weed or invader plants
- Loss of topsoil
- Contamination of area with hydrocarbons or hazardous waste materials

(b) Excavations:

- Visual intrusion associated with the excavation activities (mitigated by actions in Blasting and dust reports)
- Dust nuisance due to excavation activities as above
- Noise nuisance generated by excavation equipment
- Contamination of surface or groundwater due to effluent runoff from excavation area (mitigated by actions in surface water and geo-hydrological report)
- Unsafe working conditions for employees (refer to Dr. Michael West)
- Negative impact on the fauna and flora of the impacted area
- Contamination of the area with hydrocarbons or hazardous waste materials

(c) Stockpiling and transporting of material

- Visual intrusion associated with the stockpiled material and vehicles transporting the material
- Loss of material due to ineffective storm water handling

- Weed and invader plant infestation of the area due to the disturbance of the soil
- Dust nuisance from the stockpiled material and vehicles transporting the materials
- Degradation of access roads
- Noise nuisance caused by vehicles
- Contamination of area with hydrocarbons or hazardous waste materials

Sloping and landscaping

- Visual intrusion associated during stockpiling and landscaping activities
- Soil erosion
- Health and safety risk posed by un-sloped areas
- Dust nuisance caused during sloping and landscaping activities
- Contamination of area with hydrocarbons or hazardous waste materials

Replacing the Topsoil and Re-Vegetating of the disturbed area:

- Visual intrusion associated with the replacing of the topsoil and re-vegetation of the mining area.
- Loss of reinstated topsoil due to the absence of vegetation
- Infestation of the area by weed and invader plants

8.9.1.2 Concomitant list of appropriate technical or management options

(Chosen to modify, remedy, or stop any action, activity or process which will cause significant impacts on the environment, socio-economic conditions and historical and cultural aspects as identified. Attach detail of each technical or management option as appendices)

(a) Visual Mitigation:

- The site is screened by alien trees and the permit holder will need to protect the trees on the road side to mitigate the visual impact.
- The site needs to have a neat appearance and be kept in good condition at all times.
- Upon closure the site needs to be rehabilitated and sloped to ensure that the visual impact on the aesthetic value of the area is kept to a minimum.

(b) Dust Handling

- The liberation of dust into the surrounding environment should be effectively controlled by the use of, inter alia, water spraying and /or other dust-allaying agents.

- The site manager should ensure continuous assessments of all dust suppression equipment to confirm its effectiveness in addressing dust suppression.
- Speed on the access roads should be limited to 30km/h to prevent the generation of excess dust.
- Roads must be sprayed with water or an environmentally friendly dust-alleviating agent that contains no PCB's (eg DAS products) if dust is generated above acceptable limits and The EAP advised the applicant to harvest rainwater during rainy seasons to use for dust suppression and recycle used water from the mine, which will be sampled before use to avoid further contamination..
- All stockpiles should be thoroughly soaked to ensure dust suppression on the site

(c) Noise Handling:

- The applicant should ensure that employees and staff conduct themselves in an acceptable manner while on site, both during work hours and after hours.
- All mining vehicles should be equipped with silencers and maintained in a road worthy condition in terms of the Road Transport Act.

(d) Management of weed and invader plants:

- A weed and invader plant control management plan should be implemented at a site to ensure eradication of all listed plants in terms of Conservation of Agricultural Act (Act no 43 of 1983)
- Management must take responsibility to control declared invader or exotic species on the rehabilitated areas. The following control methods can be used:
 - "The plants can be uprooted, felled or cut off and can be destroyed completely"
 - The plants can be treated with an herbicide that is registered for use in connection therewith and in accordance with directions for the use such as herbicide"
 - The temporary topsoil and overburden stockpiles need to be kept free of weeds

(e) Storm water Handling:

- Storm water should be diverted around the topsoil heaps, stockpile areas and access roads to prevent erosion and loss of material,
- Runoff water should also be diverted around the stockpile areas with trenches and contour structures to prevent erosion of the work areas.
- Mining should be conducted only in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and

waste management, developed by the Department of Water Affairs and any other conditions which that department may impose.

- Clean water (rain water) must be kept clean and be routed to a natural watercourse by a system separate from the dirty water system. You must prevent clean water from running or spilling into dirty water system.
- Dirty water must be prevented from spilling or seeping into clean water system
- The storm water management plan must apply for the entire life cycle of the mine and over different hydrological cycles (rainfall patterns)
- The statutory requirements of various regulatory agencies and the interests of stakeholders must be considered and incorporated into the storm water management plan.

(f) Management of Health and Safety Risks:

- Workers should have access to the correct personal protection equipment (PPE) as required by law
- All operations should comply with the Occupational Health and Safety Act.
- Regular visits by health and safety medical officer Dr Michael West

(g) Waste Management

- No processing area or waste pile may be established within 100m of the edge of any river channel or other water bodies.
- Any vehicle repairs may only take place within the temporary service bay service bay area and all waste products must be disposed of in a 200 litre closed container/bin found inside the emergency service area.
- Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility
- Spills must be cleaned up immediately to the satisfaction of the Regional Manager by removing the spillage together with the polluted soil by disposing of the at a recognized facility
- Suitable covered receptacles should be available at all times and conveniently placed for the disposal of waste
- Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc, should be stored in a container with a closable lid at a collecting point and collected on a regular basis and disposed of at a licenced waste disposal facility. Specific precautions should be taken to prevent refuse from being dumped on or in the vicinity of the mine area. Biodegradable refuse generated should be handled as indicated above.

- And non-biodegradable refuse should be recycled, where facilities are available, as disposal of recyclable waste is the last resort in terms of the waste management hierarchy. This must also be reiterated in the relevant section of the EMPR.

(h) Management of Access Roads

- Newly constructed access roads (if applicable) must be adequately maintained so as to minimize dust, erosion or undue surface damage.
- Storm water should be diverted around the access roads to prevent erosion,
- Erosion of access road: Vehicular movement must be restricted to existing access routes to prevent crisscrossing of tracks through undisturbed areas.

(i) Topsoil Handling

- Where applicable the first 300m of topsoil should be removed in strips and stored at a demarcated and signposted stockpile area. Stockpiling of topsoil must be done to protect it from erosion, mixing with overburden or other material. The topsoil must be used to cover the rehabilitated area and improve the establishment of natural vegetation.
- The temporary topsoil stockpiles of each removed strip should be kept free of weeds.
- Topsoil stockpiles should be placed on a levelled area and measures should be implemented to safeguard the piles from being washed away in the event of heavy rains/storm water.
- Topsoil heaps should not exceed 2m in order to preserve micro-organisms within the topsoil, which can be lost due to compaction and lack of oxygen.
- Storm and runoff water should be diverted around the stockpile area and access roads to prevent erosion.

(j) Protection of fauna and flora:

- (According to the Ecological study 01/22), The site manager should ensure that no fauna is caught, killed, harmed, sold or played with as.
- Workers should be instructed to report any animals that may be trapped in the working area.
- No snares may be set or nests raided for eggs or young
- No plants or trees may be removed without the approval of the ECO.
- A search and rescue exercise should be conducted prior to any mining taking place at the site, to ensure that all protected and or sensitive plants is removed from the mining area.

8.10 Review the significance of the identified impacts.

(After bringing the proposed mitigation measures into consideration)

(a) Stripping and stockpiling of topsoil

Visual intrusion associated with the establishment of the mining area

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	2	1	1.6	3	1	2	3.2

Dust nuisance caused by the disturbance of the soil

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	1	1	1.3	3	2	2.5	3.3

Noise nuisance caused by machinery stripping and stockpiling the overburden

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	1	1	1.3	3	2	2.5	3.3

Infestation of the topsoil heaps by weeds or invader plants

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	2	1	1.6	3	2	2.5	4

Loss of topsoil due to incorrect storm water management

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	1	1	1.6	2	1	1.5	2.4

Contamination of area with hydrocarbons or hazardous waste materials

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	1	1	1.6	3	2	2.5	4

(a) Excavations:

Visual intrusion associated with the excavation activities

Rating: Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	4	1	2.3	4	5	4.5	10.4

Dust nuisance due to excavation activities

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	2	1	1.6	3	2	2.5	4

Noise nuisance generated by excavation equipment

Rating: Low-Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	4	1	2.3	2	3	2.5	5.8

Contamination of surface or groundwater due to effluent runoff from excavation area

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	1	2	2	2	1	1.5	3

Unsafe working conditions for employees

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	1	1	1.6	2	1	1.5	2.4

Negative impact on the fauna and flora of the area

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	1	2	1.6	3	2	2.5	4

Noise nuisance caused by vehicles

Rating: Low-Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	4	1	2.3	3	3	3	6.9

Contamination of area with hydrocarbons or hazardous waste materials

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	1	1	1.6	3	2	2.5	4

(c) Sloping and landscaping

Visual intrusion associated with sloping and landscaping activities

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
1	2	1	1.3	2	1	1.5	2.4

Soil erosion

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	1	1	1.3	2	1	1.5	2

Health and safety risk posed by un-sloped areas

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	3	1	2	2	1	1.5	3

Dust nuisance caused during sloping and landscaping activities



9.1 Assessment of each identified significant impact and risks

Table 9-1: Assessment of each identified significant impact and risks

Name of Activity	Potential impact	Aspects affected	Phase	Significance	Mitigation type	Significance (if mitigated)
Site Clearance	Dust generation	Air quality	Establishment phase	Minimal impact	Dust suppression	Negligible negative
	Loss of topsoil	Soils	Establishment phase	Minimal impact	Soil stripping	Negligible negative
	Loss of fauna & flora	Fauna & flora	Establishment phase	Minimal impact	Limited infrastructure footprint	Negligible negative
	Sedimentation of wetlands	Wetlands	Establishment phase Operational phase	Minimal impact	Buffer zones	Negligible negative
	Sedimentation & contamination of surface watercourses	Surface water	Operational phase	Minimal impact	Limited infrastructure footprint	Negligible negative
	Groundwater contamination	Groundwater	Operational phase	Minimal impact	Avoidance and spillage attention	Negligible negative
	Noise generation	Noise	Decommission phase	Minimal impact	Adhering to operating hours	Negligible negative

Soil compaction and erosion	Soils	Decommission phase	Minimal impact	negative	Vegetation, restrict access	Negligible negative
Excavation at the mine site						
Sedimentation of wetlands	Wetlands	Decommission phase	Minimal impact	negative	Buffer zones	Negligible negative
Contamination of groundwater	Groundwater	Decommission phase	Minimal impact	negative	Consent from landowners from water usage	Negligible negative
Rehabilitation						
Sedimentation of surface watercourses	Surface water	Decommission phase	Minimal impact	negative	Rehabilitation of sumps	Negligible negative
Soil compaction & erosion	Soils	Decommission phase	Minimal impact	negative		Negligible negative
Dust generation	Air quality	Decommission phase	Minimal impact	negative	Dust management plan, vegetation	Negligible negative

10. SUMMARY OF SPECIALISTS REPORTS

Table 10-1: Summary of Specialists Report

List of studies undertaken	Recommendations of specialists reports	Specialists recommendations that have been included in the EIA report	Reference to applicable sections where specialists recommendation have been included in the EIA report
Soil Impact Assessment	Individual specialist reports were not conducted due to the minimal impacts of the proposed activities	N/A	N/A
Fauna & flora	Undertaken	Mining operation will not affect the ecology of the study due to mining will take place on a previously mined area	Appendix E
Wetlands Impact Assessment	N/A	N/A	N/A

Fauna and Flora	Decommissioning Phase	100 m ²	Remove alien invasive species as and when they occur An alien invasive management plan must be established All compacted areas will be ripped to loosen the soils during rehabilitation and seeded with an appropriate seed mixture
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7. IMPACT MANAGEMENT OUTCOMES

Table 7-1: Impact Management Outcomes

Activity	Potential Impact	Aspects Affected	Phase
Column 1 Establishment Phase	Column 2	Column 3	Column 4
Operational Phase Excavation at the mine site	Fugitive dust generation Loss of topsoil resources and land capability Loss of fauna and flora species Sedimentation of wetlands	Air Quality Soils Fauna and Flora Wetlands	Establishment Phase Establishment Phase Establishment Phase Establishment Phase
	Sedimentation and contamination of surface water resources Groundwater contamination Noise generation Soil contamination and degradation Alternation of visual environment Soil compaction Sedimentation of wetlands Sedimentation of surface water resources	Surface water Groundwater Noise Soil Topography and Visual Environment Soils Wetlands Surface Water	Establishment Phase , Operational Phase Establishment Phase Establishment Phase, Decommissioning Phase Operational Phase, Decommissioning Phase Operational Phase Operational Phase Operational Phase Operational Phase

Contamination of groundwater and reduction in groundwater quantity	Groundwater	Operational Phase, Decommissioning Phase
Elusive dust generation	Air Quality	Decommissioning Phase

8. IMPACT MANAGEMENT ACTIONS

Table 8-1: impact management actions

Activities	Potential Impacts	Aspects Affected	Mitigation Type	Time Period for Implementation	Compliance with Standards
Whether listed or not listed. (E.g. Excavations, blasting, stockpiles, discard dumps, Loading, hauling and transport, offices, ablation, control, berms, roads, etc....etc...etc.)	(e.g. dust, noise, drainage surface disturbance, surface water contamination, Groundwater contamination, air pollution etc....etc...)	Air, surface and groundwater workers,	(modify, control, or stop) through (e.g. noise measures, stormwater control, dust control, rehabilitation, design measures, alternative activity etc. etc.) E.g. • Modify through alternative method. • Control through noise control • Control through management and monitoring Remedy through rehabilitation	Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. With regard to Rehabilitation, therefore state either:- Upon cessation of the individual activity or Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.	(A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by competent authority.

9.1.1 Minimum closure objectives that will be adhered to

9.1.1.1 Rehabilitation of access roads

- Whenever a mining permit is suspended, cancelled or abandoned or if it lapses and the holder does not wish to renew the permit, any access road or portions thereof, constructed by the holder and which will no longer be required by the landowner/tenant, shall be removed and/or rehabilitated to the satisfaction of the Regional Manager
- Any gate or fence erected by the holder which is not required by the landowner/tenant, shall be removed and the situation restored to the pre mining situation.
- Roads shall be ripped or ploughed, and if necessary, appropriately fertilized (Based on a soil analysis) to ensure the re-growth of vegetation. Imported road construction materials which may hamper re-growth of vegetation must be removed and disposed of in an approved manner prior to rehabilitation.

- If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a seed mix to the Regional Manager's specification.

9.1.1.2 Rehabilitation of excavated areas

- The excavated area must serve as a final depositing area for the placement of overburden.
- The topsoil of the soil profile can be stripped to a total depth of 0.3m and stockpiled separately from the sub soil as this is where the seed bank is. The subsoil approximately 0.7 – 0.9 m thick will then be stripped and stockpiled separately. The maximum estimated volume of topsoil that will be stripped over 5ha is 15,000m³.
- Rocks and coarse material removed from the excavation must be dumped into the excavation.
- No waste will be permitted to be deposited in the excavations.
- After the mining activities are completed, up to 300mm thick of topsoil will be spread on the disturbed areas. Once placed, the "soil" should then be ripped, fertilised, and re-vegetated.
- Once excavation have been refilled with overburden, rocks and coarse natural materials and profiled with acceptable contours and erosion control measures, the topsoil previously stored shall be returned to its original depth over the area.
- The area shall be fertilized if necessary to allow vegetation to establish rapidly. The site shall be seeded with a local or adapted indigenous seed mix in order to propagate the locally or regionally occurring flora
- If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analyzed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a vegetation seed mix to his or her specification.
- The open cut area will be reshaped to create a gently sloping, free-draining topography during the operational phase. The topsoil and sub soil that was removed during the construction phase should be returned/replaced (as the final top layer), fertilised and ripped. After these tasks have been completed the open cut site can be included in the rehabilitation process for re-vegetation, monitoring and maintenance.

9.1.1.3 Final rehabilitation

- All infrastructure, equipment and other items used during the mining period will be removed from the site (section 44 of the MPRDA)



Dust Monitoring:

- Dust suppression equipment such as a water car and water dispenser.
- The applicant already has the equipment available.

Noise Monitoring:

- Site manager to ensure that the vehicles are equipped with silencers and maintained in a road worthy condition.
- Compliance with the appropriate legislation with respect to noise will be mandatory.

Surface and storm water monitoring:

- Sterilized water sampling bottles to be handed to an approved laboratory for water quality testing.
- Trenches and contours to be made where applicable to direct storm and runoff water around the stockpile areas.

Management of weed or invader plants:

- Removal of weeds should be manually or by use of an approved herbicide.

Management of Health and Safety Risks:

- Workers to be provided with the required PPE while operating on site.
- The necessary warning signs to be placed at the site to inform the public and workers of the mining activities

Waste Management:

- Closed containers, for the storage of general waste or hazardous waste, to be used until waste is removed to the appropriate landfill site to comply with section 28 of the NEMA.
- Hydrocarbon spill kits to enable sufficient clean-up of contaminated areas.
- Drip trays should be available to place underneath haul vehicles while the vehicles are parked at night.
- Should a vehicle have a break down, it should be removed from site immediately.
- According to section 30 of the NEMA 1998, In the event of a significant spill of hazardous substances during the proposed mining activities should be reported to the relevant



authorities including the Pollution and Chemical Management directorate in the department of Environmental Affairs and Development Planning pertaining to the control of incident.

- Records of the waste disposal must be retained for a minimum of 5 years and must be available at any relevant authority.
- Non-biodegradable refuse such as bottles, plastic bags will be recycled where facilities are available.

Management of access roads:

- Dust suppression equipment such as a water car and dispenser.
- Trenches and contours to be made to direct storm and runoff water around the access roads.

Topsoil Monitoring:

- Excavating equipment to remove the first 300mm of topsoil from the proposed work areas. The applicant has this equipment available.
- Trenches and contours to be made to direct storm and run-off water around the stockpiled topsoil area.

10.1.1.3 Roles and Responsibilities for the Execution of the Monitoring Programmes

Supervisors must be appointed to monitor the potential impacts of the above mentioned activities and Project Managers will foresee that all of the management plans are implemented. Once the mining activities have been completed, the applicant will appoint an independent environmental officer to conduct a site visit to audit the rehabilitation and a report will be compiled and submitted to the DMR.

Table 10-1: Roles and Responsibilities

Monitoring Aspect	Role	Responsibility
Dust Monitoring	Site Manager to ensure compliance with the guidelines as stipulated in the EMP	- Control the liberation of dust into surrounding environment by the use of inter alia, water spraying and / or other dust allaying agents - Limit speed on the access roads to 30km/h to prevent the generation of excess dust. - Spray roads with water or an environmentally friendly dust allaying agent that contains no PCB's (eg DAS products) if dust is generated above acceptable limits.
	Compliance to be monitored by the Environmental Control Officer	- Assess effectiveness of dust suppression equipment. - Re-vegetate all disturbed or exposed areas as soon as possible to prevent any dust source from being created. - Thoroughly soak all stockpiles to ensure dust suppression on the site.



	Environmental Control Officer	- Ensure the availability of suitable covered receptacles at all times and conveniently placed for the disposal of waste - Store non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc, in a container with a closable lid at a collecting point. Collection should take place on a regular basis and disposed of at the licenced waste disposal facility. Prevent refuse from being dumped on or in the vicinity of the mine area. - Biodegradable refuse to be handled as indicated above. - Maintain newly constructed access roads so as to minimize dust, erosion or undue surface damage. - Divert storm water around the access roads to prevent erosion. - Erosion of access road: Restrict vehicular movement to existing access routes to prevent crisscrossing of tracks through undisturbed areas
Management of access roads	Site Manager to ensure compliance with the guidelines as stipulated in the EMP.	
	Compliance to be monitored by the Environmental Control Officer	
Topsoil Monitoring	Site Manager to ensure compliance with the guidelines as stipulated in the EMP.	- Remove the first 300mm of topsoil in strips and store at the stockpile area. - Keep the temporary topsoil stockpiles free of weeds. - Place topsoil stockpiles on a leveled area and implement measures to safeguard the piles from being washed away in the event of heavy rains/storm water. - Topsoil heaps should not exceed 2m in order to preserve micro-organisms within the topsoil, which can be lost due to compaction and lack of oxygen. - Divert storm and runoff water around the stockpile area and access roads to prevent erosion. - Conduct quarterly water analysis when water is present in the stream bordering the site.
	Compliance to be monitored by the Environmental Control Officer	
Surface Water Monitoring	Site Manager to ensure compliance with the guidelines as stipulated in the EMP.	
	Compliance to be monitored by the Environmental Control Officer	

10.2 Monitoring and reporting frequency

10.2.1 Committed time frames for monitoring and reporting

Table 10-2: Monitoring and Reporting Frequency

Monitoring Aspect	Time Frames	Reporting
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Dust monitoring	Throughout Operational Decommissioning Phase	Construction, and	- Daily compliance monitoring by site management - Quarterly compliance monitoring of site by an Environmental Control Officer
Noise Monitoring	Throughout Operational Decommissioning Phase	Construction, and	- Daily compliance monitoring by site management - Quarterly compliance monitoring of site by an Environmental Control Officer
Management of weed/invaser plants	Throughout Operational Decommissioning Phase	Construction, and	- Daily compliance monitoring by site management - Quarterly compliance monitoring of site by an Environmental Control Officer
Storm water Monitoring	Throughout Operational Decommissioning Phase	Construction, and	- Daily compliance monitoring by site management - Quarterly compliance monitoring of site by an Environmental Control Officer
Management of health and safety risks	Throughout Operational Decommissioning Phase	Construction, and	- Daily compliance monitoring by site management - Quarterly compliance monitoring of site by an Environmental Control Officer
Waste Management	Throughout Operational Decommissioning Phase	Construction, and	- Daily compliance monitoring by site management - Quarterly compliance monitoring of site by an Environmental Control Officer



12.1.1.6 Air quality:

- Wear protection when working in very dusty areas
- Implement dust control measures:
- Sweep paved roads
- Water all roads and work areas
- Minimize handling of material
- Obey speed limit and cover trucks

12.1.1.7 Driving and noise:

- Use only approved access roads
- Respect speed limit
- Only use turn-around areas –no crisscrossing through undisturbed areas
- Avoid unnecessary load noises
- Report or repair noisy vehicles

12.1.1.8 Vegetation and Animal life:

- Do not remove any plants or trees without approval of the site manager
- Do not collect fire wood
- Do not catch, kill, harm, sell or play with any animal, reptile, bird or amphibian on site
- Report any animal trapped in the work area
- Do not set snares or raid nests for eggs or young

12.1.1.9 Fire management:

- Membership of local FPA
- Do not light any fires on site, unless contained in a drum at demarcated area
- Put cigarette butts in a rubbish bin
- Do not smoke near gas, paints or petrol
- Know the position of fire-fighting equipment
- Report all fires
- Don't burn waste or vegetation

12.1.1.10 Environmental awareness training



Manganese Toxicity Management at Kleinfontein Mine, Swellendam.

Radioactivity and isotopes of manganese

Naturally occurring manganese (^{25}Mn) is composed of one stable isotope, ^{55}Mn . 25 radioisotopes have been characterized, with the most stable being ^{53}Mn with a half-life of 3.7 million years, ^{54}Mn with a half-life of 312.3 days, and ^{52}Mn with a half-life of 5.591 days. All the remaining radioactive isotopes have half-lives that are less than 3 hours and the majority of these have half-lives that are less than a minute, but only ^{45}Mn has an unknown half-life. The least stable is ^{44}Mn with a half-life shorter than 105 nanoseconds. This element also has 3 meta states.

Manganese is part of the iron group of elements, which are thought to be synthesized in large stars shortly before supernova explosions. ^{53}Mn decays to ^{53}Cr with a half-life of 3.7 million years. Because of its relatively short half-life, ^{53}Mn occurs only in tiny amounts due to the action of cosmic rays on iron in rocks. Manganese isotopic contents are typically combined with chromium isotopic contents and have found application in isotope geology and radiometric dating. Mn–Cr isotopic ratios reinforce the evidence from ^{26}Al and ^{107}Pd for the early history of the Solar System. Variations in $^{53}\text{Cr}/^{52}\text{Cr}$ and Mn/Cr ratios from several meteorites indicate an initial $^{53}\text{Mn}/^{55}\text{Mn}$ ratio that suggests Mn–Cr isotopic systematics must result from in-situ decay of ^{53}Mn in differentiated planetary bodies. Hence ^{53}Mn provides additional evidence for nucleosynthetic processes immediately before coalescence of the Solar System. The isotopes of manganese range in atomic weight from 44 u (^{44}Mn) to 69 u (^{69}Mn). The primary decay mode before the most abundant stable isotope, ^{55}Mn , is electron capture and the primary mode after is beta decay.

It is therefore clear that there is no imminent danger to humans or livestock as far as radiation is concerned in an open mine situation. Continuous exposure by labourers will be mitigated by safety rules and precautions applied as per the Departments of Labour as well as Mineral Resources. A study in Hungary published 27 Sep. 2010, The effective dose of miners due to natural radioactivity in a manganese mine in Hungary by *N Kávási 1, T Vigh, A Sorimachi, T Ishikawa, S Tokonami, M Hosoda*, confirmed that the radiation dose resulting from the consumption of karst spring-water was negligible.

Toxicity

Manganese compounds are less toxic than those of other widespread metals, such as nickel and copper. However, exposure to manganese dusts and fumes should not exceed the ceiling value of 5 mg/m³ even for short periods because of its toxicity level. Manganese poisoning has been linked to impaired motor skills and cognitive disorders.

Permanganate exhibits a higher toxicity than manganese compounds. The fatal dose is about 10 g, and several fatal intoxications have occurred. The strong oxidative effect leads to necrosis of the mucous membrane. For example, the oesophagus is affected if the permanganate is swallowed. Only a limited amount is absorbed by the intestines, but this small amount shows severe effects on the kidneys and on the liver.

Generally, exposure to ambient Mn air concentrations more than 5 µg Mn/m³ can lead to Mn-induced symptoms. Increased ferroprotein expression in human embryonic kidney (HEK293) cells is associated with decreased intracellular Mn concentration and attenuated cytotoxicity, characterized by the reversal of Mn-reduced glutamate uptake and diminished lactate dehydrogenase leakage.

Environmental health concerns in drinking water

Waterborne manganese has a greater bioavailability than dietary manganese. According to results from a 2010 study (Bouchard, M. F; Sauvé, S; Barbeau, B; Legrand, M; Bouffard, T; Limoges, E; Bellinger, D. C; Mergler, D (2011). "Intellectual impairment in school-age children exposed to manganese from drinking water". *Environmental Health Perspectives*. 119 (1): 138–143. doi:10.1289/ehp.1002321. PMC 3018493. PMID 20855239.) higher levels of exposure to manganese in drinking water are associated with increased intellectual impairment and reduced intelligence quotients in school-age children. Our geohydrological and surface water reports ensure that that no contamination of drinking water takes place and that no surrounding water bodies will have Mn levels above the international excepted US EPA levels of 0,5ppm.

Precautions

Manganese compounds are less toxic than those of other widespread metals, such as nickel and copper. However, exposure to manganese dusts and fumes should not exceed the ceiling value of 5 mg/m³ even for short periods because of its toxicity level. Permanganate exhibits a higher toxicity than manganese compounds. The fatal dose is about 10g, and several fatal intoxications have occurred. The strong oxidative effect leads to necrosis of the mucous membrane. For example, the oesophagus is affected if the permanganate is swallowed. Only a limited amount is absorbed by the intestines, but this small amount shows severe effects on the kidneys and on the liver.

Generally, exposure to ambient Mn air concentrations more than 5µg Mn/m³ can lead to Mn-induced symptoms. Increased ferroprotein expression in human embryonic kidney (HEK293) cells is associated with decreased intracellular Mn concentration and attenuated cytotoxicity, characterized by the reversal of Mn-reduced glutamate uptake and diminished lactate dehydrogenase leakage.

Orren Capital (Pty) Ltd. Has acquired the services of renowned Health & Safety expert and Manganese Toxicologist, Dr. Michael West, MBChM (083 228 3376) to monitor all aspects of health and safety including possible toxicity levels.

Management and Monitoring

Once mining operations commence, Orren Capital (Pty) Ltd. Is committed to ensure that strict management and regular monitoring will take place in accordance with the Occupational Health and Safety Act, 1993, and the Hazardous Chemical Substances Regulations, as amended. Amongst the measures that will be taken to ensure that no Mn contamination and possible hazardous exposure to staff will be as follow:

- Blasting and dust management as per attached specialist reports
- Regular air and water quality monitoring
- No smoking will be allowed on site
- All staff to wear prescribed PPE at all times
- Regularly cleaning of all site buildings floors, counters and surfaces to keep them free of dust,
- All staff to remove shoes when entering toilet and recreational facilities
- All windows to be closed on very dry and windy days when dust is visible
- Regular weather updates will inform staff of possible adverse weather conditions which might affect any movement of Mn particles.
- The DoL officials prescribed safety induction booklet and posters for employees will be readily available and displayed.

- A material safety data sheet and the incident register for will be updated daily and kept and records will be kept for at least three years.
- Monthly visits and inspections by the medical health practitioner will be conducted to as a preventive measure.
- Gate security will monitor and prevent unnecessary or illegal access to the site.

Johan West

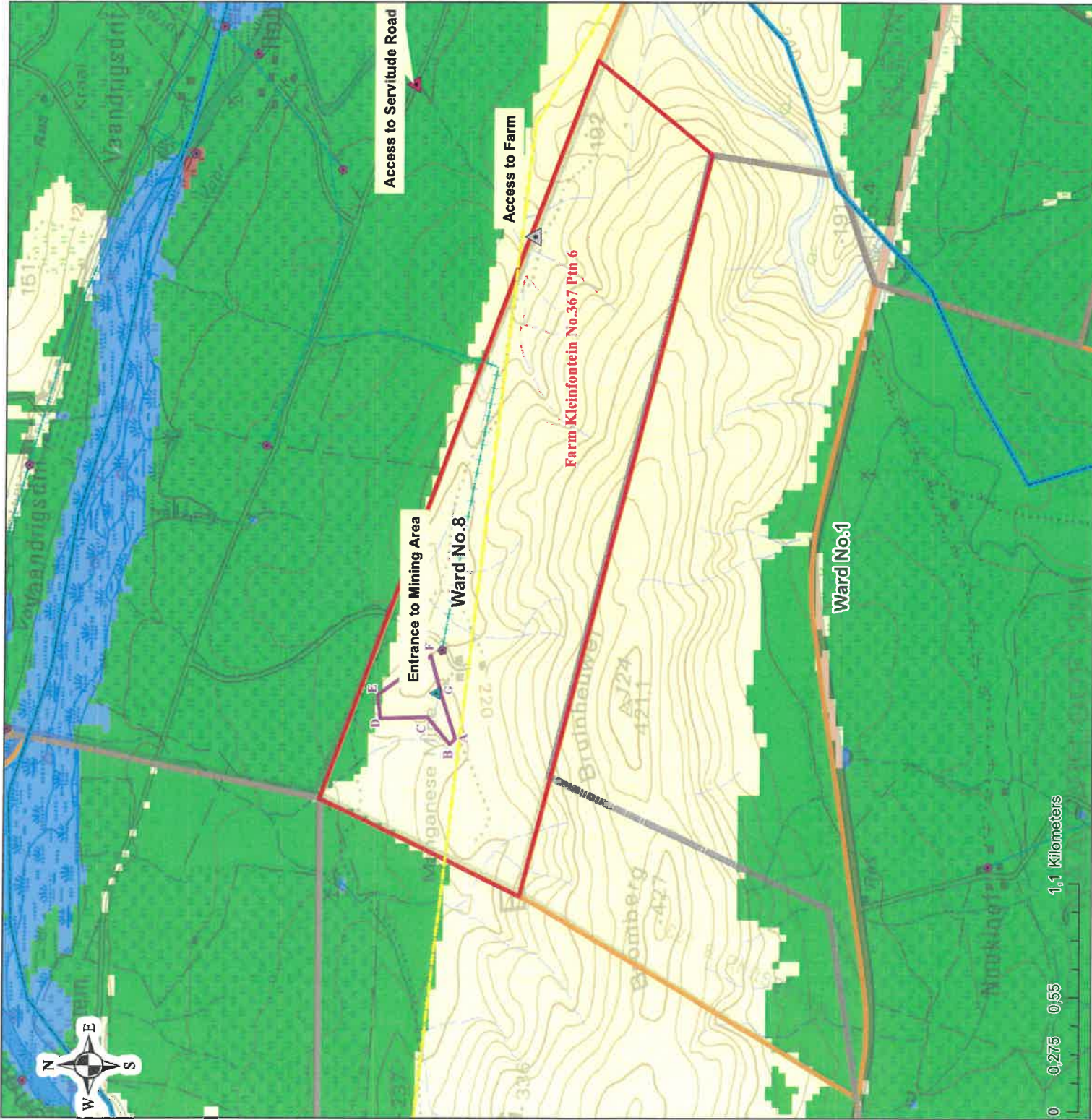
Managing Director

<https://www.linkedin.com/in/johan-west-2976ba144/>

www.GreenAfricaGroup.com

www.GreenAfricaEnergy.co.za





ORREN CAPITAL (PTY) LTD
REG.NO: 2020/855863/07
Land-Use Map

LEGEND

ACCESS POINTS
 Access to Farm
 Access to Servitude Road
 Entrance to Mining Area
 TRANSFORMATIONS
 ESKOM LINE HV
 ESKOM LINE MV LAM
 RIVERS
 MINING PERMIT AREA
 FARM PORTION NO.8
 WARDS
 PARENT FARMS
 ADMINISTRATIVE BOUNDARIES
 NATURAL
 CULTIVATION
 DEGRADED
 URBAN BUILT-UP
 WATERBODIES
 PLANTATIONS
 MINES

KLEINFONTAIN 367/6
SWE- LBM- TP
 SethPath
Engineering & Survey Solutions
Compiled by ; SethPath (pty) Ltd
Contact No: 071 704 9508
eMail : info@sethpath.co.za

COORDINATES

NATIONAL GRID DEGREE SQUARE 3420AA

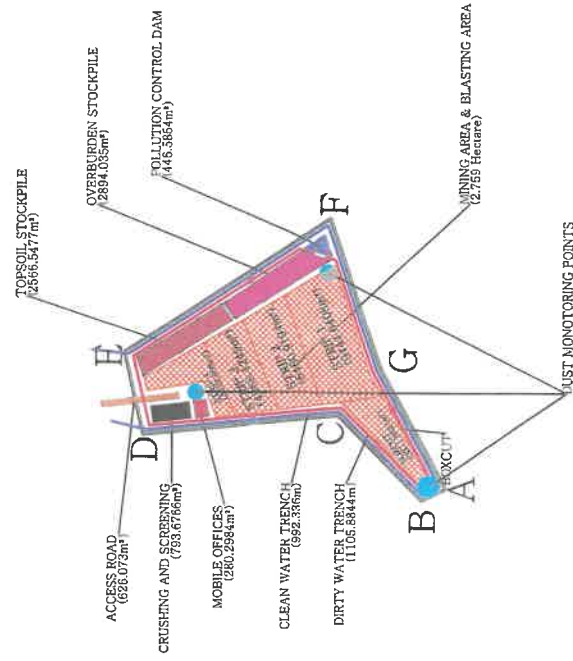
Labels	X	Y
A	20,204879	-34,084319
B	20,20478	-34,084139
C	20,205823	-34,083283
D	20,205602	-34,081277
E	20,20654	-34,081103
F	20,208133	-34,083169
G	20,20633	-34,083666

KLEINFONTEIN 36716 SWE
-LBM-22
INFRASTRUCTURE PLAN

 **Thembani Technical Services**
5 De Klerk Street
Witbank
013 650 5053
GPS : 25°53'42.1"s 29°13'54.9"E
Email : surveys@thembani.co.za



POINT	Y	X	LATITUDE	LONGITUDE
A	73385.307	3773299.75	-34.084319	20.204879
B	73394.6	3773279.85	-34.084139	20.20478
C	73299.072	3773184.15	-34.083283	20.205823
D	73321.199	3772961.78	-34.081277	20.205602
E	73234.771	3772941.81	-34.081103	20.20654
F	73085.962	3773169.85	-34.083169	20.208133
G	73251.947	3773226.27	-34.083666	20.20653
A	73385.307	3773299.75	-34.084319	20.204879





2 June 2023
REF: 15/2/8

SWELLENDAM MUNICIPALITY

49 Voortrekker street
Swellendam
6740

Contact: 028 514 8500

Email: rbrunings@swellendam.gov.za

ATT: R BRUNINGS

RE: APPLICATION TO REZONE PORTION OF PORTION 6 OF THE FARM KLEINFONTEIN 367, SWELLENDAM DISTRICT.

Dear Sir

Your letter dated 12 May 2023 and received via email from Mrs T Brunings at the Langeberg Municipality on 17 May 2023 has reference.

We herewith acknowledge receipt of your comments.

The following points are in response to your comments received.

- Section 4.1

We take note of your statement. However, due to Provincial legislation and regulation changes, the size of the proposed project triggered a Provincial application and therefor Provincial authorisation was required.

- Section 4.2

Comment has been noted. Your assumption is correct in saying that the FBAR mentioned is the document submitted to the DMRE. A copy of the granted EA has been attached herewith as well. Both the Mining application and the Rezoning application had extensive public participation processes. Mrs Tracy Brunings of the Langeberg Municipality confirmed via letter(attached herewith) to Orren Capital that the application to rezone would fall in their jurisdiction. Initial contact was made with the Swellendam Municipality when Orren Capital was in the process of applying for a Mine Right, please see correspondence attached. We worked from the assumption that the application would be circulated locally and did provide electronic copies of the FBAR for circulation.

- Section 4.3

Breede Sonderend Catchment Collaborative

We do not have any knowledge of this collaborative and therefor have not been in contact with them. Our public participation and role players were identified based on the information received from Mrs Brunings during a pre-submission consultation that was had. The collaborative was never mentioned or brought to our attention.

- Section 4.4

The intention with the rezoning is for possible future expansion if this should be a viable option, and therefor a rezoning application was warranted. The intention was clearly stated in Section 3.1 of the Motivational Report. Therefor there does not exist any disparity or uncertainty.

- Section 4.5

Site Specific

The application was initiated on the basis of a previously mined area on the mentioned farm and the identification of existing minerals that could be further exploited. This was clearly stated in the Motivational report and very site specific and not vague.

Benefits

The local community will benefit from the mining endeavour through the employment of local residents as it's labour force. This will have a trickle-down effect with money spent in the area and indirectly contributing to economic well being of the local community. Should the mining endeavour expand into a mine right, there will be communication with the Municipality regarding a Social and Labour plan to address specific needs or projects in the community.

- Section 4.6

We have estimated 5 – 7 employees for establishment phase. When other phases commence these totals might change again. No employees will be accommodated on the farm / mine area.

- Section 4.7

Sewage disposal

Currently there are 2 toilets in the site office that can be used and a further 2 chemical toilets will be placed on site that will be serviced on a weekly basis. Please see quotation from Coastal Hire to provide this service attached. Location of chemical toilets to be confirmed. There are no sewerage tanks on site, there is a French drain system in place for the existing toilets in site office.

- Section 4.8

Dust

Air pollution and dust mitigation have been addressed by the Dust Management Plan and the TIA. It has also been cleared with the land owner and neighbour, Mr Wade Badenhorst. A copy of the Dust Management Plan will be attached in the email correspondence.

Water

The applicant is in the process of applying for a water use license and a pre-existing borehole on the farm has also been identified as a viable source of water. This was stated with in the Motivational Report. We are also currently working with the Breede Catchment Management Agency to address any other concerns regarding the water. We are having a site visit with Elkerien of the agency in the next week.

The water from the Swellendam Municipality was just an interim arrangement as water will also possibly be supplied from a nearby point (in the Langeberg Municipality's jurisdiction). This process is managed by Mr Roland September of Overberg Water: Ruensveld East.

- Section 4.9

Cushing will be done on site and is addressed in the FBAR and Dust Management Plan.

- Section 5.1

Potential volumes

Studies are being undertaken to establish the total extent of the ore body to be mined, only on completion of this can there be volumes equated to the operation.

Time Frame

The mine permit allows for a 5 year period in which mining of the area can take place. Therefor the time frame is 5 years under the current, granted mine permit.

- Section 5.2

Rehabilitation

Rehabilitation plan attached hereto. The rehabilitation plan was mentioned and included in the attachments submitted with the Motivational report upon application submission.

- Section 5.3

Development Impact

The development impact, although it might seem unclear, addresses the possibility of more business opportunities moving to the area due to the establishment of the mine. This will lead to more infrastructure development and more opportunities will be created for the local community. This is in line with the IDP for Langeberg Municipality and their strategic outcomes.

“The establishment of operations will attract businesses to invest within the surrounding area, and as a result contribute to infrastructure developments. This will improve social cohesion for the local communities.”(as taken directly from the Motivational Report)

Maintenance of Service Infrastructure

Where the mine has direct impact on any infrastructure in the surrounding area we will address this situationally and also make use of local contractors to do the work, directly supporting the local economy. Negotiations are in process regarding the upgrading and maintenance of the road between Orren Capital (Pty) Ltd, Mr Wade Badenhorst and WBM. A site meeting with Mr Elroy Smith, of WBM, is scheduled for 6 June 2023.

Local Economic Development

This is difficult to determine at this stage of the project. It is, however clear that local job opportunities will be created and local contractors will benefit.

- Section 5.4

Stormwater Management Plan

Included herewith a summary of the Stormwater Management for the project, as drafted from the various water and environmental reports that was submitted with the FBAR. Copies of the mentioned Hydrological Report, Surface Water Report and Freshwater Report has been attached to the email correspondence.

Contours

Contours was taken into account and this is addressed in the Freshwater Management Plan.

Lined dam position and volume

This is clearly defined in the Surface Water Report.

Sediment disposal

A licensed contractor will be appointed by the mine to dispose of the waste in a the correct and environmentally safe manner.

- Section 5.5

Manganese toxicity

This matter is extensively covered in the Fresh Water Report by Watsan Africa (Pty) Ltd.

Dust

The Dust Management plan will address this and the managing of fall out dust will be monitored by an ECO as was indicated in the Motivational Report as well. If a high occurrence of dust is found once the mine is fully operational, measures will be put into place to not only address the mine and it's employees, but also the surrounding land owners who might be affected. We do not foresee that the surrounding landowners will be negatively impacted due to the distances from them.

Radius of mine dust

Less than 500m.

We hope you find this information helpful in clarification of any uncertainties.

Please do not hesitate to contact me if you need any information.

Kind regards

Marie Terblanche

Tracy Brunings

From: Ron Brunings <rbrunings@swellendam.gov.za>
Sent: Saturday, June 3, 2023 2:08 PM
To: Tplan
Cc: Tracy Brunings; Records Swellendam Municipality
Subject: Re: Response on Comments - Letter Received from Swellendam Municipality - Email 1
Attachments: 2023-05-12_Farm KLEINFONTEIN 367_Mining Application_pdf was removed from this message; image001.png; Tplan_Swellendam Municipality_Portion 6_Kleinfontein 367_Swellendam_Response_pdf was removed from this message

Dear Ms Terblanche

Thank you. Your comment / response is noted. However, of our concerns remain; particularly in relation to the actual beneficiation of the local economy and resident community, dust mitigation in relation to adjoining properties, and the cumulative impact on the Breede River Estuary. Thank you too for the technical reports forwarded, they serve as useful back-up information. That said, it remains incumbent on the appointed land use planner to draw out the essence of the reports, come to the conclusions, and to weave this into a succinct technically backed-up argument in motivation of the intended use, this remains lacking. Municipal officials cannot be expected to do this work on a professional planner's behalf.

Nonetheless, it is trusted that based on current information and ongoing engagements that the Langeberg Municipality will be placed to take a sufficiently informed decision on the matter.

Kindest Regards



Ron Brunings *Pr.Pln (A/794/1994)*

Manager : Town Planning, Building
Control & Environment

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Fax: +27 (0)28 514 2694

E-mail: rbrunings@swellendam.gov.za

Web: <https://www.swellendam.gov.za>

Swellendam Municipality

P.O Box 20, Swellendam, 6740, Western
Cape,

The contents of this message and any attachments are intended solely for the use of the recipient and may be legally privileged and/or confidential information. If you are not the intended recipient, you are hereby notified that any disclosure, copying or distribution of the



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49 Voortrek Street, Swellendam | P.O Box 20, Swellendam 6740

Date: 12 May 2023

Enquiries: R.Brunings (rbrunings@swellendam.co.za / 028 514 8539)

Our Ref: 15/2/8

Your Reference: 15/4/14/7

Municipal Manager
Langeberg Municipality
Private Bag X2
Ashton
6715,

Attention: Ms T. Brunings (tbrunings@langeberg.gov.za)

Dear Ms Brunings

COMMENT ON REZONING APPLICATION: PORTION 6 OF THE FARM KLEINFONTEIN NO.367, SWELLENDAM (LANGEBERG MUNICIPALITY) – AGRICULTURAL ZONE TO INDUSTRIAL ZONE III (MANGANEZE MINE)

1. Thank you for the communications and for the invitation to comment on the application lodged with your Administration.
2. It is understood that the application is for the rezoning of a 5ha portion of Portion 6 of the farm Kleinfontein No.367, Registration Division Swellendam (Langeberg Municipality) from Agricultural Zone to Industrial Zone III, in terms of the Langeberg Municipality's By-Law on Municipal Land Use Planning 2015, to enable the operation of a mine. The Swellendam Municipality is being asked to comment as an adjoining administration.
3. The stated purpose of the proposed mine is to extract Vanadium, Tin, Silver Nickel Manganese, Copper, Chrome and PGMs. It is noted that a portion of the property was used previously to mine manganese.
4. Our comment and questions are as follows:
 - 4.1. In terms of Section 156 of the National Constitution, local government has executive authority in respect of inter alia; air pollution, building regulations and municipal planning (Part B of Schedule 4). Accordingly, all on-site activity in relation to the intended use is subject strictly to the authorisation issued by said sphere, notwithstanding other authorisations that may have been secured – this point relates directly to Para 1 of the applicant report.
 - 4.2. The author of the rezoning application is T-Plan, which has lodged the application on behalf of the Orren Capital, the newly registered owner the property. Reference is made in the application to the Final Basic Assessment Report (RBAR). It is assumed

that this was the FBAR lodged with the Department Mineral Resources and Energy in terms of NEMA. It is noted that the Swellendam Municipality was not notified of that application, and to date has had no sight of the BAR or the FBAR.

- 4.3. Further to the above, has the Breede-Sonderend Catchment Collaborative, which includes a broad base of national, provincial and district roleplayers, as well as landowners, been made aware of the proposed mine and did the applicant approach it for comment?
 - 4.4. It is understood that an application was made to DMRE for a mining permit. This implies that the applicant intends to mine the property for a period of up to 5 years only. It is questioned therefore why the land use application is for a rezoning, not a Departure. Industrial Zone III in terms of the Langeberg Zoning Scheme By-Law is intended for "operations of a more permanent nature, as apposed to temporary, short-term mining or prospecting activities." This disparity creates uncertainty for adjoining land owners and for local government administrations. What is the intention?
 - 4.5. The reasons given / motivation made for the application (in the report) are considered vague and are certainly not specific to the site. Moreover, there is no evidence provided that the operation of the mine will indeed benefit the "socio-economic status of the area." If so, how? Moreover, there is no detail provided in terms of "job opportunities and entrepreneurship." This is rural / agricultural area. How and where will the mine benefit the local community, and to what extent?
 - 4.6. How many persons will be employed on the premises, and where / how are these persons to be accommodated?
 - 4.7. How is on-site sewage / waste to be addressed? Has an agreement been concluded with the applicable Municipality?
 - 4.8. Air pollution and dust mitigation measures are key issues in relation to mining activity, and specifically in this case given the ore proposed to be extracted. Access to a reliable water source is seminal in this regard. It is understood that the mine would require $\pm 40\text{kl}$ per day. Whilst the Swellendam municipality is prepared to provide a portion of the water, subject to conditions, this cannot be provided indefinitely. Where would the balanced be sourced? No land use approval can be granted at local government level unless the full required quota can be reliably sourced and that this is so confirmed in writing.
 - 4.9. No mention is made in the application of crushing. Can it be assumed that this will be undertaken off-site? If not the process and the implications thereof on the adjoining properties (particularly in terms of dust suppression) is to be fully articulated.
5. Further comment and questions:
- 5.1. The land use application makes no mention of the actual volumes being dealt with, or of the time frame, hence it is difficult to gauge the activity's land use impact.
 - 5.2. The intended rehabilitation process is to be specifically outlined in the land use application – this is not only an environmental issue.
 - 5.3. Section 3.3 of the Report
 - Development Impact – the application makes no cogent comment in this regard.
 - Maintenance of Service Infrastructure – many assumptions and spurious statements are made, there is no clarity as to who would be implementing or financing such "projects" or "upgrading", or if these will indeed materialize.

- Local Economic Development – how, when, and how much, will the mine contribute to the “livelihood of the area”?
- 5.4. Stormwater Management Plan; there are various questions in this regard. But key in this regard is the following:
- Has the plan looked carefully at the contours to confirm that the proposal can indeed work?
 - Where is the intended lined holding / sediment pond to be located on the property and what is the volume – no detail is provided.
 - Where will the sediment from the pond be disposed of, and what volumes, and is there a written agreement in place from the applicable licensed waste disposal site operator? This agreement is to be provided.
- 5.5. Manganese Toxicity Management Report (John West):
- Whilst the geohydrological and surface water reports indicate that there will be no contamination of drinking water (clearly, as there is none) “no surrounding water bodies will have Mn levels above international accepted standards US EPA levels of 0.5ppm”. This begs the question, what are the current Mn levels and by how much will the operation of the mine impact on these? It is noted that the Sonderend River flows into the Breede River and ultimately the Breede River Estuary so detail is critical.
 - It is noted that precautions are being taken in relation to on-site staff, particularly in term of dust. However, what mitigation measures are to be put in place for adjoining property owners and staff, not to mention the impact on agricultural products – now and in the years to come.
 - To what radius from the mine will ore dust potentially impact on existing and future agricultural activity?
6. The above comprises our initial input, on the basis of the information provided. As a Municipality we have reservations as to the overall merit of the initiative, and in this location – based on the information provided in the land use application. It is considered that the Swellendam Municipality, its ratepayers, the adjoining agricultural environment, and the Breede River Estuary are being put at increased risk by supporting the establishment of the mine, without there being any direct or indirect benefit. We reserve the right to amend and augment our comment, as and when required, as part of the process towards a final decision on this matter.
7. If there are any questions regarding the above, please feel free to contact this office directly.

Yours faithfully



pp

A. VORSTER
MUNICIPAL MANAGER



Ref: TPW/CFS/RP/LUD/REZ/SUB-27/100 (Job 29083)

The Municipal Manager
Langeberg Municipality
Private Bag X2
ASHTON
6715

Attention: Ms T Brunings

Dear Madam

PORTION 6 OF FARM NO. 367, SWELLENDAM: MINOR ROAD 4553: DRAFT SCOPING REPORT FOR THE RE-ACTIVATION OF A MANGANESE ORE MINE

1. Your email dated 2 February 2023 refers.
2. The subject property is located 18 km south-west from Swellendam and takes indirect access off Minor Road 4553.
3. This application for Rezoning from Agricultural Zone I to Industrial Zone III to accommodate a manganese mine.
4. The Traffic Impact Assessment undertaken by Messrs TopEng notes the following:
 - 4.1. That the water course across Minor Road 4553 at $\pm$ km 2.75 requires pipe culverts or similar;
 - 4.2. That Minor Road 4553 will require periodic grading and maintenance;
5. As dust may have a potential impact on the surrounding agricultural activities, the Mine proponent must ensure that a robust dust management programme is submitted to the District Roads Engineer - Paarl for his approval prior to operations beginning.
6. The Branch offers no objection to the application in terms of the Land Use Planning Act, No. 3 of 2014, subject to the following conditions:
 - 6.1. That the mine bear the costs of the upgrade of the water course crossing on Minor Road 4553 at km 2.75.
 - 6.2. That the mine bear the costs of the periodic grading and maintenance of Minor Road 4553; and

- 6.3. That the mine bear the costs of all dust control measures for Minor Road 4553, as approved by the District Roads Engineer - Paarl.
7. The Applicant must liaise with Mr E Smith from the Paarl District Roads Engineers office (021 863 2020) in relation to all matters affecting Minor Road 4553.

Yours Sincerely



SW CARSTENS

For DEPUTY DIRECTOR-GENERAL: ROADS

DATE: 6 MARCH 2023

F DEPARTMENTAL LETTERS / MISCELLANEOUS CORRESPONDENCE
HERITAGE WESTERN CAPE

Our Ref: HM / CAPE TOWN METROPOLITAN / HOUT BAY / RE OF ERF 2848
Case No: 22031411CN0531E
Enquiries: Come Norlfe
E-mail: come.norlfe@westerncape.gov.za
Tel: 021 483 5959



Fritz Orren
Orren Capital (Pty) Ltd
081 315 1046
fritz@orrencap.co.za

RESPONSE TO NOTIFICATION OF INTENT TO DEVELOP: FINAL
In terms of Section 38(8) of the National Heritage Resources Act (Act 25 of 1999) and the Western Cape
Provincial Gazette 6061, Notice 298 of 2003

NOTIFICATION OF INTENT TO DEVELOP: PROPOSED SMALL SCALE MINING ACTIVITIES PORTION 6 OF THE FARM KLEINFONTEIN NO. 367, ACCESSED VIA VAANDRIGDRIF CONNECTING TO N2, NEAR SWELLENHAM SUBMITTED IN TERMS OF SECTION 38(1) OF THE NATIONAL HERITAGE RESOURCES ACT (ACT 25 OF 1999).

The matter above has reference.

Heritage Western Cape is in receipt of the above matter received. This matter was discussed at the Heritage Officers meeting held on 24 June 2022.

You are hereby notified that, since there is no reason to believe that the proposed small scale mining activities on Portion 6 of the farm Kleinfontein No. 367, accessed via Vaandrigrif connecting to N2, near Swellendam will impact on heritage resources, no further action under Section 38 of the National Heritage Resources Act (Act 25 of 1999) is required.

However, should any heritage resources, including evidence of graves and human burials, archaeological material and paleontological material be discovered during the execution of the activities above, all works must be stopped immediately, and Heritage Western Cape must be notified without delay.

This letter does not exonerate the applicant from obtaining any necessary approval from any other applicable statutory authority.

HWC reserves the right to request additional information as required.

Should you have any further queries, please contact the official above and quote the case number.


.....
Nuraan Vallie
Acting Deputy Director



www.westerncape.gov.za/cas





BREEDDE-GOURITZ

CATCHMENT MANAGEMENT AGENCY

Corner Mountain Mill & East Lake Roads, Worcester, 6850 | Private Bag X3055 Worcester 6850

Enquiries: M Mimbadi

Tel: 023 346 8000

Fax: 023 347 2012

E-mail: mmmbadi@bgcma.co.za

Our Ref: 4/10/1/H60L/Kleinfontein 367/6, Swellendam

Date: 27/03/2023

The Manager: Town Planning
Langeberg Municipality
Private Bag X2
ASHTON
6715

E-mail: tbrunings@langeberg.gov.za / admin@langeberg.gov.za

Attention: Tracy Brunings

COMMENTS: APPLICATION FOR REZONING FROM AGRICULTURE ZONE I TO INDUSTRIAL ZONE II ON PORTION OF PORTION 6 THE FARM KLEINFONTEIN 367 RD.

The Breedde-Gouritz Catchment Management Agency (BGCMA) has received documents for the above-mentioned proposed development on the 02/02/2023, requesting comments.

BGCMA has reviewed the documents submitted and has the following comments:

Water Uses

It is noted that the proposed mining activity will trigger the following water uses in terms of Section 21 of the National Water Act, 1998 (Act 36 of 1998).

- Section 21 (g) for Pollution Control Dam
- Section 21 (g) for Stockpiles
- Section 21 (g) for dust suppression
- Section 21 c & i for upgrading a road crossing a water course.

A Water Use Authorisation Application for the above mentioned water uses should be lodged with the Department of Water and Sanitation by following this link: <http://www.dwa.gov.za/ewulaasprod/Register.aspx>. All the water use related issues will be addressed in the assessment process.

It is mentioned on the documents submitted that there is an intention to apply for Section 21 (a) water use for taking water from the borehole, it is advisable to incorporate that application with application for the above identified water uses and make an integrated WULA.

Disposal of sewage

- Please note that this office does not support the use of septic tank with french drains for the disposal of sewage. The use of conservancy tanks is recommended, and construction of such conservancy tank must be of such a nature that no water will enter the system or leave it by means of seepage.

When a conservancy tank is used for the disposal of sewage, the agreement letter between the contractor or the municipality which is appointed to pump the sewage indicating that the treatment facility will cater for additional effluent must be submitted to this office.

- The disposal of sewage must at all times comply with the requirements of Section 22 and 40 of the National Water Act, 1998 (Act 36 of 1998).

General

- All relevant sections and regulations of the National Water Act, 1998 (Act 36 of 1998) regarding water use must be adhered to.
- No water must be taken from a water resource for any purpose without authorisation from the National Water Act, 1998 (Act 36 of 1998).
- Water provided for domestic use must comply with the SANS 241: 2015 guidelines for drinking water.
- No waste or water containing waste may be disposed without authorisation from the National Water Act, 1998 (Act 36 of 1998) and National Environmental Management: Waste Act, 2008 (Act 59 of 2008).
- No permanent structures may be constructed within the 100-year flood line or within 100 meters of any watercourse (seasonal or permanent river, stream, etc), whichever is furthest without firstly obtaining authorisation in terms of Section 21 (c) and (i) of the National Water Act, 1998 (Act 36 of 1998).
- No pollution of surface water or groundwater resources may occur.
- The minimising of waste must be promoted and alternative methods for waste management must be investigated.
- Stormwater management must be addressed both in terms of flooding, erosion and pollution potential.
- No stormwater runoff from any premises containing waste, or water containing waste emanating from industrial activities and premises may be discharged into a water resource. Polluted stormwater must be contained.

Please be advised that no activities may commence without the appropriate approvals/authorisations where needed from the responsible authority. The onus remains with the registered property owner to confirm adherence to any relevant legislation that such activities might trigger and/or need authorisation for.

This office reserves the right to amend and revise its comments as well as to request any further information.

Please do not hesitate to contact this office if you have any further queries. Please ensure to quote the above reference in doing so.

Yours faithfully,



JAN VAN STADEN
CHIEF EXECUTIVE OFFICER (ACTING)

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physical 16 17th Avenue, Voëlklip, Hermanus, 7200
website www.capenature.co.za
enquiries Rhett Smart
telephone 087 087 8017
email rsmart@capenature.co.za
reference LS14/2/6/1/9/1/367-6_rezoning_Stormsvlei
date 6 September 2023

T-Plan
42 Bizweni Avenue
Somerset West
7130

Attention: Marie Terblanche
By email: marie@tplan.co.za

Dear Marie

Revegetation and Rehabilitation Plan and Invasive Alien Species Clearing Plan for the Application for Rezoning for the Proposed Mine on Portion 6 of Farm 367, Stormsvlei District, Langeberg Municipality

CapeNature would like to thank you for the opportunity to comment on the application and would like to make the following comments. Please note that our comments only pertain to the biodiversity related impacts and not to the overall desirability of the application.

CapeNature recommended that a rehabilitation plan and alien invasive species management plan should be compiled to inform the operational management of the mine and remainder of the property. These reports have been compiled and provided for comment.

The revegetation and rehabilitation plan provides more detailed and appropriate specifications than the contents related to rehabilitation in the Basic Assessment Report/Environmental Management Programme Report (BAR/EMPr). We wish to note the current disturbed state of the mining footprint due to the historical mining activities and therefore there is unlikely to be a healthy seedbank of indigenous fynbos species. Shaping of the areas under rehabilitation to natural topography must be undertaken where required and possible.

Alien clearing will need to be an important component of the mining area (the invasive alien species clearing plan focuses on the remainder of the property). We recommend that there should be continuous removal of invasive alien seedlings within the areas under rehabilitation as soon as they are identifiable.

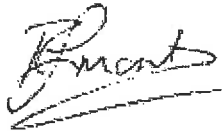
An extensive species list is provided to potentially be used for rehabilitation where additional seeding and planting is required and is more appropriate than the BAR/EMPr species list. We recommend that seeds and cuttings for propagation should be obtained from the remaining fynbos on the property as this will ensure that the locally indigenous species and genotypes will be used. The establishment of the initial cover should focus on pioneer species.

The invasive alien species clearing plan is supported. It would be useful to include a map of the three alien invasive clearing compartments referred to, in order to indicate the areas targeted for alien clearing. The overall density should be cumulative of the individual alien species densities.

In conclusion, CapeNature supports the implementation of the revegetation and rehabilitation plan and the invasive alien species clearing plan, subject to the comments above.

CapeNature reserves the right to revise initial comments and request further information based on any additional information that may be received.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Rhett Smart', with a horizontal line underneath.

Rhett Smart

For: Manager (Landscape Conservation Intelligence)

cc. Tracy Brunings, Langeberg Municipality

Langeberg Municipality* (LLUPB, 2015)

Date: 2023/02/22

tbrunings@langeberg.gov.za

Enquiries:

WayleavesWesternOU@eskom.co.za

WAYLEAVE APPLICATION: *Land Use Application by private land owner - Eskom comment required by Langeberg Municipality. : 23km east of Sormsvlei, off N2 & MR4553 · Between Stormsvlei & Swellendam

YOUR REF: 15/4/14/7 Kleinfontein 367/6 Swellendam

ESKOM REF: 08863-23

THIS IS NOT AN APPROVAL TO START CONSTRUCTION

I hereby inform you that Eskom has no objection to the proposed work indicated on your drawing in principle. This approval is valid for **12 months** only, after which reapplication must be made if the work has not been completed.

1. Eskom services are affected by your proposed works and the following must be noted:

- a) Eskom has no objection to the proposed work and include a drawing indicating Eskom 11kV/LV underground services in close proximity.
- b) Please note that underground services indicated are only approximate and the onus is on the applicant to verify its location.
- c) There may be LV overhead services / connections not indicated on this drawing.
- d) The successful contractor must apply for the necessary agreement forms and additional cable information not indicated on included drawing, in order to start construction.

Application for Working Permit must be made to:

Customer Network Centre: Swellendam

Juanita Steenkamp

028 514 7228 / 071 655 3225

SteenkJn@eskom.co.za

Include Eskom Wayleave as-built drawings and all documentation, when applying for Working Permit.

Should it be necessary to move, relocate or support any existing services for possible future needs, it will be at the developer's cost. Application for relocating services must be made to Customer Services on 08600 37566 or customerservices@eskom.co.za

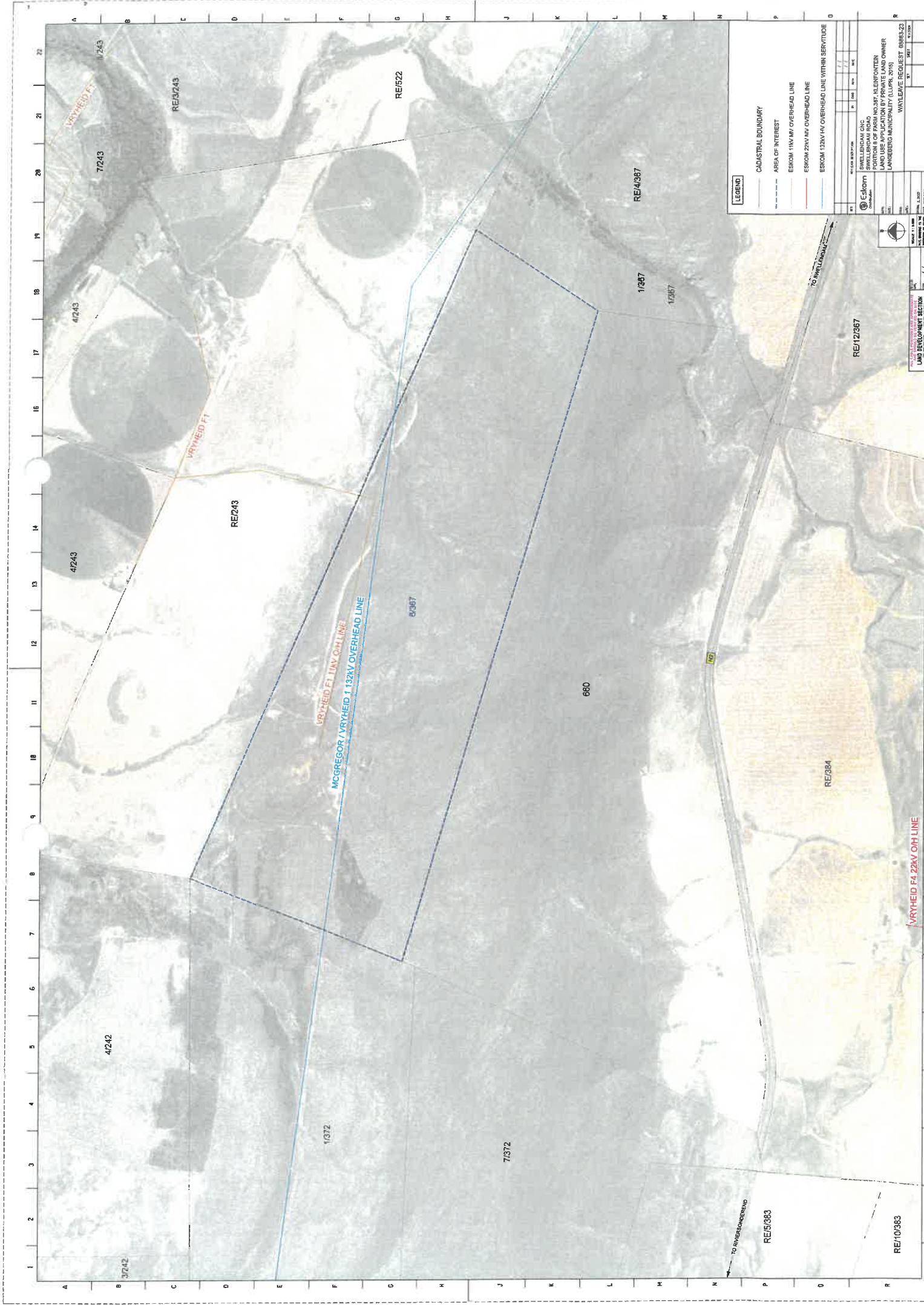
- f) That existing Eskom power lines and infrastructure are acknowledged as established infrastructure on the properties and any rerouting or relocation would be for the cost of the applicant/developer.
- g) That Eskom rights or servitudes, including agreements with any of the landowners, obtained for the operation and maintenance of these existing power lines and infrastructure be acknowledged and honoured throughout its lifecycle which include, but are not limited to:
 - i. Having 24 hour access to its infrastructure according to the rights mentioned in (a) above,
 - ii. To perform maintenance (structural as well as servitude – vegetation management) on its infrastructure according to its maintenance programmes and schedules,
 - iii. To upgrade or refurbish its existing power lines and infrastructure as determined by Eskom,
 - iv. To perform any other activity not listed above to ensure the safe operation and maintenance of the Eskom power lines or infrastructure.
- h) Eskom must have at least a 10m obstruction free zone around all pylons (not just a 10m radius from the centre).
- i) Eskom shall not be liable for the death or injury of any person, or for loss of or damage to any property, whether as a result of the encroachment or use of the area where Eskom has its services, by the applicant, his/her agent, contractors, employees, successors in title and assignee.
- j) The applicant indemnifies Eskom against loss, claims or damages, including claims pertaining to interference with Eskom services, apparatus or otherwise.
- k) Eskom shall at all times have unobstructed access to and egress from its services.
- l) Any development which necessitates the relocation of Eskom's services will be to the account of the developer.
- m) Lungile Motsisi MotsisL@eskom.co.za. Eskom: Transmission must be contacted on 011 800 5734 to comment on behalf of the 400 kV OVERHEAD POWERLINES. NO WORK WITIN THIS SERVITUDE OR UNDERNEATH POWERLINES IS ALLOWED until comment from Eskom Transmission has been obtained.

4. **NOTE**

Wayleaves, Indemnity form (working permit) and all as-built drawings issued by Eskom to be kept on site at all times during construction period.

Yours faithfully

LAND DEVELOPMENT (BRACKENFELL)



LEGEND

- CADASTRAL BOUNDARY
- AREA OF INTEREST
- ESKOM 11KV MV OVERHEAD LINE
- ESKOM 22KV MV OVERHEAD LINE
- ESKOM 132KV HV OVERHEAD LINE WITHIN SERVICE

WELLCAM CMC
SWELLEDAM ROAD
WELLCAM CMC IS INDEPENDENT
LAND USE APPLICATION BY PRIVATE LAND OWNER
LANEDEVCO MUNICIPALITY (LLUPR, 2016)

WYTHLEAVE REQUEST 08083.23

WYTHLEAVE REQUEST 08083.23

WYTHLEAVE REQUEST 08083.23

WYTHLEAVE REQUEST 08083.23



mineral resources & energy

Department:
Mineral Resources and Energy
REPUBLIC OF SOUTH AFRICA

Private Bag X 9, Rogge Bay, 8012, Tel: 021 427 1000, Fax: 021 427 1046
15th floor, 09 Atterbury House (The Box), Corner Riebeeck and Lower Burg Street, Cape Town, 8001
Enquiries: Mr. BP Mohasoa Email Address: Peter.Mohasoa@dmre.gov.za

Ref: WC30/5/1/3/2/1/10291MP

Sub-Directorate: Mine Environmental Management

BY EMAIL

The Directors
Orren Capital (Pty) Ltd
21, 23, 27 Banfield Road
Industria North
Johannesburg
2092

Attention : Mr O Fritz
Cell : 081 315 1046
Email : Fritz@orreca.co.za

Dear Sir

ENVIRONMENTAL AUTHORISATION IN TERMS OF SECTION 24 OF NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT 107 OF 1998) (NEMA), AS AMENDED, READ WITH REGULATION 19 OF THE ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REGULATIONS OF 2014, AS AMENDED, FOR A MINING PERMIT IN RESPECT OF VANADIUM ORE, TIN ORE, SILVER ORE, PGM, NICKEL ORE, MANGANESE ORE, COPPER ORE AND CHROME ORE MINING ACTIVITIES ON PORTION OF PORTION 6 OF THE FARM KLEINFONTEIN 367, SITUATED IN THE MAGISTERIAL DISTRICT OF SWELLENDAM: WESTEN CAPE REGION.

With reference to the above-mentioned application, please be advised that the Department has decided to grant the integrated environmental authorisation in terms of the National Environmental Management Act (Act 107 of 1998). The environmental authorisation and reasons for the decision are attached herewith.

In terms of Regulation 4(2) of the Environmental Impact Assessment Regulations of 2014, you are instructed to notify all registered interested and affected parties, in writing within 14 (fourteen) calendar days, from the date of the Department's decision in respect of your application and the relevant provisions regarding the lodgement of appeal must be provided for in terms of the National Appeal Regulations of 2014.

Should you wish to appeal any aspect of the decision, you must submit the appeal to the Minister of Forestry, Fisheries and Environment and a copy of such appeal to the Department of Mineral Resources and Energy (Western Cape Regional Office), within 20 days from the date of notification, and such appeal must be lodged as prescribed in by Chapter 2 of the National Appeal Regulations of 2014, by means of the methods as prescribed below:

Appeal to the Department of Forestry, Fisheries and Environment

Attention : Directorate Appeals and Legal Review
Email : appeals@dfre.gov.za
By post : Private Bag X 447, Pretoria, 0001
By hand : Environmental House, Corner Steve Biko and Soutpansberg Street, Arcadia, Pretoria, 0083

Copy of the lodged appeal to the Department of Mineral Resources and Energy

Attention : Regional Manager: Western Cape Region
By facsimile : (021) 427 1046
E-mail : Pieter.Swart@dmre.gov.za
By post : Private Bag X 09, Roggebaai, 8012
By hand : Atterbury House, 9 Corner Riebeeck and Lower Burg Street, Cape Town, 8001

Should you decide to appeal, you must comply with the National Appeal Regulation of 2014 in relation to notification of all registered interested and affected, and a copy of the official appeal form can be obtained from the Department of Forestry, Fisheries and Environment.

Kind Regards

REGIONAL MANAGER: MINERAL REGULATION
WESTERN CAPE REGIONAL OFFICE
DATE: 19/11/2014



mineral resources & energy

Department:
Mineral Resources and Energy
REPUBLIC OF SOUTH AFRICA

Private Bag X 9, Rogge Bay, 8012, Tel: 021 427 1000, Fax: 021 427 1046
15th floor, 09 Atterbury House (The Box), Corner Riebeeck and Lower Burg Street, Cape Town, 8001

ENVIRONMENTAL AUTHORISATION IN TERMS OF SECTION 24 OF NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT 107 OF 1998) AS AMENDED, READ WITH REGULATION 19 OF THE ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REGULATIONS OF 2014, AS AMENDED, IN RESPECT OF VANADIUM ORE, TIN ORE, SILVER ORE, PGM, NICKEL ORE, MANGANESE ORE, COPPER ORE AND CHROME ORE MINING ACTIVITIES ON PORTION OF PORTION 6 OF THE FARM KLEINFONTEIN 367, SITUATED IN THE MAGISTERIAL DISTRICT OF SWELLENDAAM: WESTEN CAPE REGION.

Reference number:	WC30/5/1/3/2/1/10291MP
Last amended:	First Issue
Holder of authorisation:	Oren Capital (Pty) Ltd
Location of activities:	Portion of Portion 6 of the Farm Kleinfontein 367, situated in the Magisterial District of Swellendam.

DECISION

ACRONYMS

BAR:	Basic Assessment Report
DEPARTMENT:	Department of Mineral Resources and Energy
ECO:	Environmental Control Officer
IEA:	Integrated Environmental Authorisation
EA:	Environmental Authorisation
EIA(R):	Environmental Impact Assessment
EIA REGULATIONS:	EIA Regulations, 2014 as amended
EMPr:	Environmental Management Programme
HWC:	Heritage Western Cape
I&AP:	Interested and Affected Parties
MPRDA:	Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002), as amended
NEMA:	National Environmental Management Act, 1998 (Act 107 of 1998), as amended
NEMWA:	National Environmental Management: Waste Act, 2008 (Act 59 of 2008), as amended
SAHRA:	South African Heritage Resources Agency
DWS:	Department of Water and Sanitation

The Department is satisfied, on the basis of information available to it and subject to compliance with the conditions of this Environmental Authorisation, that the applicant should be authorised to undertake NEMA EIA listed activities specified below. Details regarding the basis on which the Department reached this granting decision are set out in Annexure "1" and "2" of this Environmental Authorisation.

ACTIVITY APPLIED FOR

By virtue of the powers conferred on it by NEMA, the Department of Mineral Resources and Energy hereby grants an Environmental Authorisation to **Orren Capital (Pty) Ltd** with the following contact details –

The Directors
Orren Capital (Pty) Ltd
21, 23, 27 Banfield Road
Industria North
Johannesburg
2092

Attention : Mr O Fritz
Cell : 081 315 1046
Email : Fritz@orreca.co.za

to undertake the following activities listed in the NEMA: EIA Regulations:

LISTED ACTIVITIES AUTHORISED:

Listed Activities	Activity and/or project description
Activity 21 of Government notice No. R 983 as amended by GN 327 of April 2017 Any activity including the operation of that activity which requires a mining permit in terms of section 27 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including —	Mining activities will be conducted over an area of 2.99ha at a depth of 4 – 10m.

(a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource; or (b) the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing; but excluding the secondary processing of a mineral resource, including the smelting, beneficiation, reduction, refining, calcining or gasification of the mineral resource in which case activity 6 in Listing Notice 2 applies.	
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Description of the activities are as follows:

- a) Existing access roads will be used to access the mine area.
- b) Removal of topsoil and overburden material to prepare the site.
- c) Opencast mining by blasting of the ore body. Fragmented material will be loaded by front end loader and hauled by trucks to the crushing and screening plants.
- d) Various stockpiles will be created, that includes topsoil and overburden stockpiles, product and ROM stockpiles.
- e) Water will be sourced from a supplier
- f) Surface water run-off will be channeled to an existing Pollution Control Dam.
- g) Site infrastructure includes ablution facilities and existing offices.
- h) Rehabilitation will commence upon completion of mining activities.

Site description and location:

The activities will be conducted on Portion of Portion 6 of Farm Kleinfontein 367, situated in the Magisterial District of Cape Winelands: Western Cape. Refer to Regulation 2(2) sketch map on Annexure A1 and Aerial Google Earth Photo Annexure B2 of the BAR/EMPr signed by the Regional Manager.



Site coordinate of the Mining Permit area

ID	Latitude	Longitude
A	20.204879	- 34.084319
B	20.20478	- 34.084139
C	20.205823	- 34.083283
D	20.205602	- 34.081277
E	20.20654	- 34.081103
F	20.208133	- 34.083169
G	20.20633	- 34.083666

The SG code for each farm portion: C07800000000036700006

The granting of this EA is subject to the conditions set out below (site specific) and in Annexure 2 (Departmental Standard Conditions). The EMP_r attached as part of the reports for the above development submitted as part of the application for an EA complies with Section 24N of NEMA, Appendix 4 of the EIA Regulations, 2014 as amended and is hereby approved and must be adhered to throughout the life cycle of the operation.

ENVIRONMENTAL AUTHORISATION SITE SPECIFIC CONDITIONS

1. Mining activities must be conducted in accordance with the approved BAR/EMPr, recommendations of the specialists and attached site layout plan.
2. Depth of the excavation must not exceed 15m.
3. Blasting notifications must be issued to landowners and surrounding landowners (7) prior to the blasting event.
4. Vibration recorders must be installed at reasonably appropriate locations, positioning the devices in line with structures that could potentially be affected by the blasting event.
5. To mitigate the impacts of blasting activities, recommendations provided by the specialist must be implemented.
6. Effective dust control measures must be applied to the mine area as recommended in the Dust Management Plan. Dust generated by activities must comply with the norms and standards as per the National Environmental Management Air Quality.
7. Groundwater monitoring system must be implemented before commencement of mining activities (quarrying) to monitor pollution in the Intergranular aquifer as well as the fractured aquifer. The monitoring system must be planned and implemented by a suitably qualified person.
8. Quarterly groundwater monitoring should be conducted for the following variables: Total Dissolved Salts/ Electrical Conductivity, pH levels, alkalinity, carbonates, magnesium, calcium, sodium, potassium, sulphate, chloride, fluoride, iron, nitrates, manganese, and aluminium. The results must be submitted to the Competent Authority on quarterly basis.
9. Noise abatement devices must be installed on the project vehicles and machineries to be used on site and noise generated must comply with the Western Cape Noise Control Regulations.
10. Double stripping rehabilitation technique must be undertaken. Stripping of topsoil layer followed by a second additional layer below the topsoil. Both of these layers must be stored separately and during rehabilitation the layers must be spread in their original

sequence. Topsoil layer and subsoil layer must be stripped to a depth of approximately 30cm.

11. Topsoil, subsoil, and overburden must be stored separately and visibly demarcated as no-go areas. Effective storm-water runoff and erosion prevention measures must be implemented to prevent losses by water and/or wind erosion.
12. Establishment of a new access road is prohibited. Access to the mine area must be through approved existing access roads.
13. Establishment of site infrastructure must be restricted to ablution facilities, weather proofed waste bins, and existing offices.
14. Maintain a complaint register onsite indicating the date, time and nature of the complaint, and the response thereto (within reasonable timeframes) to all complaints received.
15. The transportation of commodities is undertaken by use of SU rigid vehicle trucks only. Articulated vehicles with or without multiple trailers should be avoided as the sight distance at the intersection of N2-4 and OP 4553 is considered less than optimal
16. Product material leaving the site must be covered with tarpaulin cloth during transportation to prevent blowing away by wind and causing pollution nuisance to other road users and the general public.
17. Alien invasive and weed vegetation monitoring and removal must be undertaken annually during mining and a year after mining activities have ceased on disturbed areas.
18. If any unexpected archaeological or paleontological material or evidence of burials is discovered during earth moving activities all works must be stopped and Heritage Western Cape (HWC) must be notified immediately by the on-site Environmental Control Officer

ANNEXURE 1: REASONS FOR THE DECISION

1. Key factors considered in making the decision.

All the information presented to the Department was taken into account during the Department's consideration of the application. A summary of the issues which, in the Department's view, were of the most significance are set out below.

- 1.1. The information contained in the EA application lodged on 08th December 2021**
- 1.2. The information contained in the final BAR/EMPr prepared an independent Environmental Assessment Practitioner Mr T Ramoraswi from TPR Mining Resources (Pty) Ltd, received by the Department on 01st August 2022.**
- 1.3. The environmental impacts associated with the proposed mining activities outlined in the BAR and the proposed mitigation measures outlined in the EMPr.**
- 1.4. The objectives and requirements of the applicable and relevant legislation, frameworks and development plans, policies and guidelines, and the EIA Regulations.**
- 1.5. Specialist assessments attached as Appendix E in the final BAR/EMPr received by the Department on 01st August 2022. Specialist assessments conducted are as follows:**
 - 1.5.1. Terrestrial Biodiversity Assessment prepared by Mr. L Morulane of North Anchor Group (Pty) Ltd.**
 - 1.5.2. Geo-hydrological Assessment prepared by Mr. E Netshiozwi of SethPath (Pty) Ltd**
 - 1.5.3. Traffic Impact Assessment prepared by Mr. H Cassoo of TopEng Consulting (Pty) Ltd**
 - 1.5.4. Blasting Impact Assessment prepared by Mr. SB Maseko**
 - 1.5.5. Surface Water Report prepared by Mr. J West of Green Africa Group (Pty) Ltd**
 - 1.5.6. Dust Management Plan prepared by Mr. J West of Green Africa Group (Pty) Ltd**
- 1.6. Terrestrial Biodiversity comment letter by Mr L Morulane of North Anchor Group (Pty) Ltd received by the Department on 16th September 2022.**
- 1.7. Geo-hydrological comment letter by Mr H Cassoo of TopEng Consulting (Pty) Ltd received by the Department on 16th September 2022.**

- 1.8. **Blasting Impact comment by Mr SB Maseko received by the Department on 16th September 2022.**
- 1.9. **Public Participation Process (PPP) report attached in the final BAREMP. This includes comments from relevant competent authorities and Mine and Health Safety Inspectorate.**
- 1.10. **The Applicant has complied with Section 24P of the National Environmental Management Act, 1998 (Act 107 of 1998) and provided the financial provision for remediation of residual and latent impacts.**

2 Findings

After careful consideration of the information and factors listed above, the Department made the following findings.

- 2.1. **The environmental impact assessment identified and assessed all potential environmental impacts on the subject property(ies).**
- 2.2. **The assessment discussed the significance of each potential impact looking into the following aspects: (a) extent, (b) intensity, (c) duration and (d) likelihood. In absence of mitigation and rehabilitation measures, the significance rating of impacts range from low – medium – high.**
- 2.3. **Upon application of mitigation and rehabilitation measures as outlined in the EMP, specialist recommendations and Closure Plan, the significance rating of impacts range from low – very low.**
- 2.4. **The specialist assessments provide the following conclusion and/or recommendations:**
 - 2.4.1. **Terrestrial Biodiversity Assessment prepared by Mr. L Morulane of North Anchor Group (Pty) Ltd.**
 - (i) **The vegetation onsite resembles a severely modified and transformed form of North Sonderend Sandstone Fynbos surrounded by mostly natural vegetation. Disturbance vegetation is mainly due to historical mining activities and access roads.**

- (ii) Although there are some small-scale variations in the plant communities present onsite, notably due to the site lying in between two elevated ridges running almost parallel in an east-west direction, the vegetation onsite has been classified as a single type and indeed the vegetation is relatively uniform.
- (iii) Therefore, it is unlikely that the development will have an impact on the status of the Ecosystem and Vegetation Type due to the limited extent of the mine as well as the presence of already disturbed areas within the footprint.

2.4.2. Geo-hydrological Assessment prepared by Mr. E Netshiozwi of SethPath (Pty) Ltd.

- (i) The results of the hydrochemistry indicate that the water quality is compliant with SAN 241-1:2015 drinking water guidelines except the fact that the groundwater has high Fe content, while the stream water has high Chlorine, Magnesium, Sodium, Sulphate and EC.
- (ii) The fractured and intergranular aquifers in the area are classified as a minor aquifer – intermediate aquifers with variable water quality and low to moderate expected yield (0.5 – 2 l/s).
- (iii) Using the literature and hydro-census it was found that the aquifer has a moderate to most vulnerable status and as a result it also has a high level of ground water quality management index of > 520ms-m. This indicates a medium level of aquifer protection is required.
- (iv) Drilling monitoring boreholes and developing a monitoring strategy (i.e., water sample must be taken from all the monitoring boreholes around the site by using approved sampling techniques and adhering to recognised sampling procedures.

2.4.3. Traffic Impact Assessment prepared by Mr. H Cassoo of TopEng Consulting (Pty) Ltd

- (i) The trip generation of the mine in the various phases of lifecycle remains negligible. It will have no significant impact on traffic operations nor the safety of the intersection of N2-4 and OP 4553, provided recommended restrictions pertaining to truck sizes are adhered to.

- (II) No major geometric improvements are required at the intersection of the N2 and Minor Road 4553.
- (III) However, the introduction of pipe culverts across OP4553 at the stream near km 2,75 may be required to prevent further erosion of the gravel road, especially during the rainy season.
- (iv) The transportation of commodities is undertaken by use of SU rigid vehicle trucks only. Articulated vehicles with or without multiple trailers should be avoided as the sight distance at the intersection of N2-4 and OP 4553 is considered less than optimal. For safety reasons, a SU rigid vehicle truck should be utilised.
- (v) The periodic trimming of the grass verges on the left-hand side of the N2-4 be undertaken as it will improve sight distance. This should form part of a SANRAL routine road maintenance program.

2.4.4. Blasting Impact Assessment prepared by Mr. SB Maseko

- (i) The crops within 500m of the operation will suffer the highest negative impact for blasting related fly rock risk, dust and fumes, it can be avoided by following this recommendation, a specific risk assessment must be conducted to address the risks that blasting possess to the crops and a blasting plan must be formulated citing the recommendations in this document on how to control blasting to avoid any damage on the crops.
- (ii) All overburden blasting that occurs closer than 1200m from any crops should be designed to reduce the charge mass per delay and thus limit vibration to below 7.0 mm/s in these areas where people live. This can be done by reducing hole diameters or introducing multiple charge decks into each hole or a combination of these two. Holes will need to be fired one at a time during a blast at distances closer than 2000m from any third-party structures. This is best achieved using accurate detonators.
- (iii) There are no farmsteads within 1200m of mining impact. However, mitigation measures will need to be applied consciously to keep the negative impact significance to Low when blasting.
- (iv) Mitigation measures will be needed to control vibration to within specified limits when mining within 500m of the Eskom infrastructure such as power lines.

1

- (v) Wind direction to be monitored if it's up wind direction it will mean it's safe to blast but downwind will mean its unsafe to blast as the crops may be affected by fumes and dust from the blast.

2.4.5. Surface Water Report prepared by Mr. J West of Green Africa Group (Pty) Ltd

- (i) The entire study area is drained by a non-perennial watercourse which in turn drains into the Sonderend River.
- (ii) No natural wetlands within or nearby the proposed mining area was found.
- (iii) The Present Ecological State scores (PES) for this portion of the watercourse and associated riparian fringe were rated as pristine. This portion of the Olifantsloop watercourse and its associated riparian fringe is regarded as Low Sensitivity.

2.4.6. Dust Management Plan prepared by Mr. J West of Green Africa Group (Pty) Ltd

- (i) Excavation, handling and transport of erodible materials must be avoided under high wind conditions or when a visible dust plume is present.
- (ii) Appropriate dust suppression measures must be used when dust generation is unavoidable, e.g., damping down of all exposed soil surfaces with a water bowser or sprinklers when necessary.
- (iii) Vehicle speeds shall not exceed 40km/h;
- (iv) Truck will drive at a speed no higher than 20km/h next to fruit orchards.

Recommendations provided in the specialist assessments are included in the EMPs and/or site-specific conditions.

2.5. The Terrestrial Biodiversity comment provided the following outcomes:

- (i) At the time of the survey, no red listed/protected species were recorded within the 5ha permit boundary area however the farm belongs to the floristic region which is known to host species diversity of protected plants. However, the mine area is significantly disturbed by previous mining activities.

2.6. Geo-hydrological comment provided the following outcomes:

- (i) The level of the water table that encountered during the site visit or hydrocensus conducted on 25th October 2021 was ~28m and this primarily because it was rainy



season and therefore it was closer to the ground or surface. Meaning that the water table readings vary in different seasons, in winter the water table experienced will shift more deeper than that experienced in summer, where it will be closer to the ground.

- (ii) The stream name in question is the Heskwas perennial river which connects to Riviersonderend perennial river in the East – North direction. The approximate distance from the mining permit area is ~3.5km in the Eastern direction of the mining permit area (please refer to page 12 of the report).

2.7. Blasting comment provided the following outcomes:

- (i) 500m radius will be affected by blasting activities, this can be controlled by doing a effective blasting plan considering the stemming to control fly rocks.
- (ii) Up wind and down wind monitoring is also essential part of the mitigation measures.
- (iii) Blasting simulation is strongly recommended to be able to control blasting.
- (iv) The use of noiseless initiating device is also important.

2.8. Public Participation Process complied with Chapter 6 of the EIA Regulations. The PPP included, *inter-alia*, the following (Annexure C):

- (i) Newspaper advertisement announcing the commencement of the BAR/EMPr process was placed in the local newspaper – Breederivier News on 08th March 2022.
- (ii) Visible site notices were placed at boundary of the property.
- (iii) Written notifications were distributed by registered post and/or electronic mail to the landowner and direct neighbours on 18th February 2022.
- (iv) Written notifications were distributed by registered post and/or electronic mail to relevant SoEs (administering environmental functions) on 18th February 2022.
- (v) Proof of consultation with - and comments from - the Interested and Affected Parties are included in the BAR/EMPr.
- (vi) Comments and issues raised by Interested and Affected Parties were adequately addressed in the BAR/EMPr.
- (vii) The register/list of interested and affected parties was opened and is included in the BAR/EMPr.

2.9. Mine Health and Safety Inspectorate supports the application.

ANNEXURE 2: DEPARTMENTAL STANDARD CONDITIONS

1 SCOPE OF AUTHORISATION

- 1.1** The holder of the EA must be responsible for ensuring compliance with the conditions contained in the EA. This includes any person acting on the holder's behalf, including but not limited to an agent, servant, contractor, subcontractor, employee, consultant or any person rendering a service to the holder of EA.
- 1.2** Any changes to, or deviation from the project description set out in this EA must be approved in writing by this Department before such changes or deviation may be effected. In assessing whether to grant such approval or not, the Department may request such information as is deemed necessary to evaluate the significance and impacts of such changes or deviation and it may be necessary for the holder of the EA to apply for further authorisation in terms of the EIA Regulations as amended.
- 1.3** The activities, which are authorised, must only be carried out at the property indicated in the EA and the approved EMPr.
- 1.4** When any of the holders of the EA contact details change including name of the responsible person, physical or postal address or telephonic details, the holder of the EA must notify the Department as soon as the new details become known to the holder of the EA.
- 1.5** The EA does not negate the responsibility of the holder to comply with any other statutory requirements that may be applicable to the undertaking of such activity (ies).
- 1.6** The holder of EA must ensure that all areas where the authorised activities occur have controlled access to ensure safety of people and animals.

2 APPEAL OF AUTHORISATION

- 2.1** The holder of the EA must in writing, within 14 (fourteen) calendar days from the date of this decision and in accordance with EIA Regulation 4(2) do the following:
- 2.2** Notify all registered I&APs of –



- 2.2.1 The outcome of the application;
 - 2.2.2 The date of the decision;
 - 2.2.3 The date of issue of the decision and;
 - 2.2.4 The reasons for the decision as included in Annexure 1 and Departmental standard conditions in Annexure 2.
- 2.3 Draw the attention of all registered I&APs to the fact that an appeal may be lodged against the decision in terms of the National Appeals Regulations.
- 2.4 Draw the attention of all registered I&APs to the manner in which they may access the decision.
- 2.5 **Copy of the lodged appeal must be addressed to the Department of Mineral Resources on the address given on Page 2 of the EA.**
- 2.6 Provide the registered I&APs with:
 - 2.6.1 Name of the holder (entity) of this EA;
 - 2.6.2 Name of the responsible person for this EA;
 - 2.6.3 Postal address of the holder;
 - 2.5.4 Telephonic and fax details of the holder and
 - 2.5.5 E-mail address of the holder if any.
- 3 **COMMENCEMENT OF THE ACTIVITY (IES)**
 - 3.1 In order to ensure safety, all employees must be given the necessary personnel protective equipment (PPE) and any employee without PPE must not be allowed on site.
 - 3.2 This EA must be provided to the site operator and the requirements thereof must be made fully known to him or her.
 - 3.3 **Hauling routes for mining vehicles and machinery must be clearly marked and appropriate signaling must be posted to that effect. Furthermore, movement of vehicles and machinery must be restricted to the approved mining area.**



- 3.4** Appropriate notification sign must be erected at the mining site, warning the public (residents, visitors etc.) about the hazard around the mining area and presence of mining vehicles and machinery.
- 3.5** Vegetation clearance must be limited to the actual mining footprint in accordance to the approved layout plan, and mitigation measures must be implemented to reduce the risk of erosion and alien species invasion.
- 3.6** Topsoil stripped before mining must be protected from erosion, contamination and/or pollution and stockpiling of topsoil must not take place in the drainage lines or areas where it will impede water runoff.
- 3.7** If any soil contamination is noted at any phase of the proposed activity (ies), the contaminated soil must be removed to a licensed waste disposal facility designed for such waste and the site must be rehabilitated to the satisfaction of the Department and Department of Water and Sanitation. The opportunity for the onsite remediation and re-use of contaminated soil must be investigated prior to the disposal and this Department must be informed in this regard.
- 3.8** An integrated waste management approach that is based on waste minimization (waste management hierarchy) must be implemented and must incorporate avoidance, reduction, recycling, treat, reuse and disposal where appropriate. Ensure that no refuse generated in the mining area is placed, buried, dumped or deposited on the adjacent properties or public places and open space.
- 3.9** Uncontaminated storm water must be prevented from coming into contact with the waste and must be diverted away from the storage site and mining area.
- 3.10** The waste generated during mining activities must be stored in animal proof containers and must be removed from site and disposed of at a registered disposal facility. Proof of disposal at a registered disposal facility must be kept and produced to any official of this Department on request.
- 3.11** In terms of sections 28 and 30 of NEMA, any costs incurred to remedy environmental damage must be borne by the person responsible for the damage. It is therefore imperative that the holder of the EA reads through and understand the legislative requirements pertaining to the project. It is the holder of EA responsibility to take reasonable measures

which include informing and educating contractors and employees about environmental risks of their work and training them to operate in an environmentally acceptable manner.

- 3.12** Vehicles and machineries must be serviced and maintained in the manner whereby excessive smokes and noise production is reduced to acceptable levels, and to prevent oil leaks. Servicing of machinery and vehicles must not take place on site.
- 3.13** Residents (if any) on the property and surrounding areas must be informed of any unusual noise activities are planned in the mining area.
- 3.14** Dust suppression measures must be implemented on all exposed surface and access road to minimize and control airborne dust.
- 3.15** Should any heritage remains be exposed during operation or any actions on the site, these must immediately be reported to the South African Heritage Resource Agency (SAHRA) and/or Heritage Western Cape (HWC) (in accordance with the applicable legislation). Heritage remains uncovered or disturbed during earthworks must not be further disturbed until the necessary approval has been obtained from the South African Heritage Resource Agency (SAHRA) and or Heritage Western Cape (HWC).
- 3.16** Care must be taken to ensure that material and topsoil required for rehabilitation is free of contamination from hydrocarbons.
- 3.17** Refueling of machinery and construction vehicles must be done through a mobile bowser. Should any spills occur, it must be cleaned immediately by removing spillage together with the polluted soil and dispose it at authorised disposal site permitted for the disposal of such waste. The regional office of the Department of Water and Sanitation must be notified within 24 hours of an incident that may pollute surface and ground water resources.
- 3.18** Chemical sanitation facilities or system such as toilets that do not rely on the seepage of liquids must be provided with a ratio of 1 for every 15 workers. These must be placed such that they prevent spills or leaks to the environment and must be maintained according to the operating instructions and the content thereof must be disposed of at an authorised wastewater treatment works. Proof of disposal must be kept on site and be produced upon request.



- 3.19** The holder of EA must ensure that any water uses listed in terms of Section 21 of National Water Act must get authorisation from Department of Water and Sanitation prior to the commencement of such activity (ies).
- 3.20** This EA does not purport to absolve the holder of EA from its common law obligations towards the owner of the surface of land affected.
- 3.21** The holder of EA must ensure that rehabilitation of the disturbed areas caused by operation at all times comply with the approved EMP.
- 3.22** This EA may be amended or withdrawn at any stage for non-compliance and provides no relief from the provisions of any other relevant statutory or contractual obligations.
- 3.23** The holder of EA must note that in terms of Section 20 of the National Environmental Management: Waste Act, 2008 (Act No.59 of 2008), no person may commence, undertake or conduct a waste management activity, except in accordance, with the requirements of norms and standards determined in terms of Section 19 (3) for that activity or a waste management license is issued in respect of that activity if license is required.
- 3.24** An appeal under Section 43(7) of the National Environmental Management Act (NEMA), Act 107 of 1998 (as amended) suspend an EA or exemption or any provisions of conditions attached hereto, or any directive unless the Minister directs otherwise.
- 3.25** Should you be notified by the Minister of a suspension of the authorisation pending appeal procedure, you may not commence with the activity (ies) until such time that the Minister allows you to commence with such activity (ies) in writing.
- 3.26** The Department reserves the right to audit and/or inspect the activity (ies) without prior notification at any reasonable time and at such frequency as may be determined by the Regional Manager.
- 3.27** Subject to the commencement and duration requirements of the MPRDA and NEMA for the listed mining activities, the EA is valid for the period for which the aforesaid Mining Permit is granted provided that this activity commences within 5 years. If the commencement of the proposed activities does not occur within the specified period, the EA lapses and a new application for EA in terms of the NEMA and the EIA Regulations must be made for the activity to be undertaken.



3.28 This EA will only be effective on the event that a corresponding Mining Permit is issued in terms of MPRDA as amended and none of the activities listed in this EA may commence without a Mining Permit.

3.29 The listed activity (ies), including site preparation, must not commence within 30 (thirty) calendar days of the date of the notification of the decision being sent to the registered I&APs. This is inclusive of the 10 days condonation in the event that an appeal is lodged with the appeal administrator, the effect of this environmental authorisation is suspended until such time as the appeal is decided.

3.30 Should there be any conflicting conditions between this EA and other approval granted by other authorities, it is upon the holder of EA to bring it to the attention of the Department for resolution.

4 MANAGEMENT OF ACTIVITY (IES)

4.1 A copy of the EA and EMPr must be kept at the property or on-site office where the activities will be undertaken. The EA and EMPr must be produced to any authorised officials of the Department who request to see it and must be made available for inspection by any employee or agent of the holder of the EA who works or undertakes work at the property (ies).

4.2 The contents of the EMPr and its objectives must be made known to all contractors, subcontractors, agent and any other people working on the site, and any updates or amendments to the EMPr must be submitted to the Department for approval.

4.3 Any complaint received from the I&AP during all phases of the operation must be attended to as soon as possible and addressed to the satisfaction of all concerned interested and affected parties.

4.4 The holder of the EA must prevent nuisance conditions or health hazards, or the potential creation of nuisance conditions or health hazards.

4.5 The holder of the EA must ensure that all non-recyclable waste are disposed of at a waste management facilities licensed to handle such wastes and all recyclable waste are collected by licensed waste management facilities for recycling, reuse or treatment.

- 4.6** In order to prevent nuisance conditions, the holder of the EA must ensure that all storage skips and bins are not overfilled. The holder of the EA must also make sure that littering of waste within the mining area is prohibited.
- 4.7** Non-compliance with any condition of this EA and the approved EMPr is an offence in terms of section 49A(1)(c) of NEMA and may result in criminal proceedings and issuing of a directive in terms of Section 28 and or a compliance notice in terms of section 31L of NEMA.
- 4.8** Only listed activity (ies) that are expressly specified in the EA must be undertaken, any additional or new activities not specified herein must be applied for by the holder and authorised by the competent authority before such activities may be commenced with. This condition is also applicable in the case of the amendment, addition, substitution, correction, and removal or updating of any detail in the aforesaid EA.
- 4.9** Rehabilitation of the disturbed surface caused by operation must comply with the approved EMPr.
- 4.10** The Holder of EA must appoint the ECO before commencement of mining activities and ensure that the name and contact details of the ECO is made available to the Regional Manager within 30 days of commencement. The holder of EA must also ensure that an ECO is readily available on site to ensure that activities at all times comply with the issued EA and approved EMPr.
- 4.11** The ECO must:
- 4.11.1** Keep and maintain a detailed incidents register (including any spillages of fuels, chemicals or any other material).
 - 4.11.2** Keep a complaint register on site indicating the complaint and how the issues were addressed, what measures were taken and what the preventative measures were implemented to avoid re-occurrence of complaints.
 - 4.11.3** Keep records relating to monitoring and auditing on site and avail them for inspection to any relevant authorised officials.
 - 4.11.4** Keep copies of all environmental reports submitted to the Department.



- 4.11.5** Keep the records of all permits, licences and authorisations required by the operation.
 - 4.11.6** Compile a monthly monitoring report and make it available to the Department if requested.
 - 4.11.7** The duties and responsibility of the ECO must not be seen as exempting the holder of the EA from the legal obligations in terms of the NEMA.
- 4.12** The footprint of the activities must be limited on the areas authorised for the actual mining works and operational activities and all areas outside of the footprint must be regarded as a "no go" areas.
- 4.13** Any sand and/or gravel leaving the mine area must be fully covered with a tarpaulin cloth while been transported.

5 REPORTING TO THE DEPARTMENT

5.1 The holder of EA must:

- 5.1.1** Submit an Environmental Audit Report to this Department biennially and such report must be done by qualified Independent Environmental Assessment Practitioner and the audit report must specify whether conditions of this environmental authorisation and EMP/closure plan are adhered to;
- 5.1.2** The audit report must be in accordance to appendix 7 of the 2014 EIA regulations as amended;
- 5.1.3** identify and assess any new impacts and risks as a result of undertaking the activities, if applicable;
- 5.1.4** Identify shortcomings in the EMP/closure plan, if applicable;
- 5.1.5** identify the need, if any, for any changes to the management, avoidance and mitigation measures provided for in the EMP;
- 5.1.6** if applicable, specify that the corrective action/s taken for the previous audit's non-conformities, was adequate and must;
- 5.1.7** be submitted by the holder to the competent authority within 30 days from the date on which the auditor finalised the audit.



- 5.2** Should any shortcomings in terms of Regulation 34(4) be identified, the holder must submit recommendation to amend the EMP/closure plan in order to rectify any shortcomings identified with the aforementioned audit report.
- 5.3** The holder of the EA must annually assess the environmental liabilities of the operation by using the master rates in line with the applicable Consumer Price Index (CPI) at the time and address the shortfall on the financial provision submitted in terms of section 24P of NEMA.
- 5.4** The holder of the EA must, within 24 hours of any incidents occurring, notify the Competent Authority of the occurrence or detection of any incident on the site, or incidental to the operation of the site, which has the potential to cause, or has caused pollution of the environment, health risks, nuisance conditions or water pollution.
- 5.5** The holder of the EA must, within 14 days, or a shorter period of time, if specified by the Competent Authority from the occurrence or detection of any incident referred to in condition 5.4, submit an action plan, which must include a detailed time schedule, and resource allocation signed off by top management, to the satisfaction of the Competent Authority of measures taken to –
- 5.5.1** Correct the impact resulting from the incident;
 - 5.5.2** Prevent the incident from causing any further impact; and
 - 5.5.3** Prevent a recurrence of a similar incident.
 - 5.5.4** In the event that measures have not been implemented within 21 days of the incident referred to in condition 5.4, or measures which have been implemented are inadequate, the Competent Authority may implement the necessary measures at the cost of the holder of the EA.

6 SITE SECURITY AND ACCESS CONTROL

- 6.1** The holder of the EA must ensure effective access control to the site to reasonably prevent unauthorised entry. Signs indicating the risks involved in unauthorised entry must be displayed at the entrance.
- 6.2** The mining area must be fenced off and lockable gates must be installed to restrict unauthorised access to the site.

- 6.3** Weatherproof, durable and legible notices in at least three official languages applicable in the area must be displayed at the entrance to the site. These notices must prohibit unauthorised entry and state the hours of operation, the name, address and telephone number of the holder of the EA and the person responsible for the operation of the site.

7 EMERGENCY PREPAREDNESS PLAN

- 7.1** The holder of the EA must draft, maintain and implement an emergency preparedness plan and review it annually when conducting audit and after each emergency and or major accident. The plan must, amongst others, include:

- 7.1.1** Site Fire
- 7.1.2** Spillage
- 7.1.3** Natural disasters such as floods
- 7.1.4** Industrial action
- 7.1.5** Contact details of police, ambulances and any emergency center closer to the site.

- 7.2** The holder of EA must ensure that an up-to-date emergency register is kept during all phases of the operation. This register must be made available upon request by the Department.

8 INVESTIGATIONS

- 8.1** If, in the opinion of the Competent Authority, nuisances or health risks may be or is occurring on the site, the holder of the EA must initiate an investigation into the cause of the problem or suspected problem.
- 8.2** If, in the opinion of the Competent Authority, pollution may be or is occurring, the holder of the EA must initiate an investigation into the cause of the problem or suspected problem. Such investigation must include the monitoring of the water quality variables and air quality, at those monitoring points and such frequency as may be specified by the Competent Authority.
- 8.3** Investigations carried out in terms of conditions 8.1 and 8.2 above must include the monitoring of the relevant environmental pollution and/or degradation, nuisance and health

risk variables, at those monitoring points and such frequency to be determined in consultation with the Competent Authority.

8.4 Should the investigation carried out as per conditions 8.1 and 8.2 above reveal any unacceptable levels of pollution, the holder of the EA must submit mitigation measures to the satisfaction of the Competent Authority.

8.5 The holder of the EA must comply with Section 28 of the NEMA and conduct mining activities in an environmentally friendly manner.

9 COMMISSIONING AND DECOMMISSIONING

9.1 The commissioning and decommissioning of individual activity within the overall listed mining activities must take place within the phases and timeframes as set out in EMPr.

10 SITE CLOSURE

10.1 The holder of EA must apply for a closure certificate in terms of Section 43 of Mineral and Petroleum Resources Development Act (Act 28 of 2002), as amended within 180 days of occurrence of lapsing, abandonment, cancellation, cessation, relinquishment and completion of development.

10.2 The application for closure indicated above must be submitted together with all relevant documents as indicated in Section 43 of Mineral and Petroleum Resources Development Act (Act 28 of 2002), as amended.

10.3 No exotic but, only indigenous plants must be utilized for rehabilitation purposes.

10.4 The holder of EA remains responsible for any environmental liability, pollution or ecological degradation, the pumping and treatment of extraneous water, compliance with the conditions of EA, management and sustainable closure thereof until the Minister has issued a Closure Certificate in terms of Section 43 of Mineral and Petroleum Resources Development Act (Act 28 of 2002). Where necessary the Minister may retain certain portion of financial provision for residual, health or environmental impacts that might be known in future.



11 NEMA PRINCIPLES

The NEMA Principles (set out in Section 2 of NEMA, which apply to the actions of all Organs of State, serve as guidelines by reference to which any Organ of State must exercise any function when taking any decision, and which must guide the interpretation, administration and implementation of any other law concerned with the protection or management of the environment), *inter alia*, provides for:

- the effects of decisions on all aspects of the environment to be taken into account;
- the consideration, assessment and evaluation of the social, economic and environmental impacts of activities (disadvantages and benefits), and for decisions to be appropriate in the light of such consideration and assessment;
- the co-ordination and harmonisation of policies, legislation and actions relating to the environment;
- the resolving of actual or potential conflicts of interest between Organs of State through conflict resolution procedures; and
- the selection of the best practicable environmental option.

12 DISCLAIMER

The Department of Mineral Resources and Energy in terms of the conditions of this environmental authorisation shall not be responsible for any damages or losses suffered by the holder, developer or his/her successor in any instance where construction or operation subsequent to construction is temporarily or permanently stopped for reasons of non-compliance with the conditions as set out herein or any other subsequent document or legal action emanating from this decision.



13 RECOMMENDATIONS

In view of the above, the NEMA principles, compliance with the conditions stipulated in this EA, and compliance with the EMP/closure plan, the competent authority is satisfied that the proposed listed activities will not conflict with the general objectives of Integrated Environmental Management stipulated in Chapter 5 of NEMA, and that any potentially detrimental environmental impacts resulting from the listed activities can be mitigated to acceptable levels. The authorisation is accordingly granted.

Your interest in the future of our environment is appreciated.

Kind Regards,


REGIONAL MANAGER: MINERAL REGULATION
WESTERN CAPE REGIONAL OFFICE
DATE: 19/11/2022



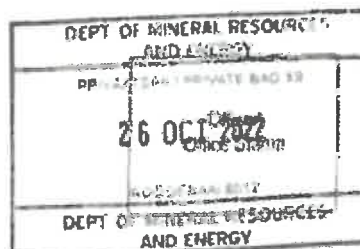
mineral resources & energy

Department
Mineral Resources and Energy
REPUBLIC OF SOUTH AFRICA

DMRE 68

MINING PERMIT

[Issued in terms of section 27 of the Mineral and Petroleum Resources
Development Act 2002 (Act No. 28 of 2002)]



Permit No. 11/2022 Region Western Cape
Office reference WCR3015/1/3/2/10291MF

Permission is hereby granted under and subject to the provisions of the Mineral and Petroleum Resources Development Act

2002 to [full name] ORREN CAPITAL (PTY) LTD

Identity number in case of a natural person

In the case of a person other than a natural person please indicate

Co ☒ Cc ☐ Partnership/Joint venture ☐ Other ☐

* If other, specify

Registration number of Co or Cc 2 0 2 0 8 5 5 9 6 3 0 7

To mine for [name of mineral] VANADIUM ORE TIN ORE SILVER ORE PGM NICKEL ORE MANGANESE ORE COPPER ORE CHROME ORE

On [full name of farm and subdivision, registration division and no.] ON PORTION OF PORTION 1 OF THE FARM KLEYN ONTEM 307 MAGISTERIAL DISTRICT OF SIVELLENDAM

as indicated on the attached plan No. 11/2022 signed by the Regional Manager on 2 6 1 0 2 0 3 7

Unless this permit is suspended, cancelled, abandoned or lapses, it shall be valid for a period (not more than two years) which shall extend from the date of issuing to 2 5 1 0 2 0 2 4 and may be renewed for three periods each which may not exceed one year

This permit does not exempt the holder from the requirements of any provision of any other law, or from any restrictive provisions or conditions contained in the title deed of the land concerned, nor does it encroach upon the rights of any person who may have an interest in the land concerned

Signed at Cape Town this 26th day of OCTOBER 2022

MINISTER OF MINERAL RESOURCES AND ENERGY



21 Banfield Road
Industria North
Roodepoort

STORMWATER MANAGEMENT PLAN

**for resuming mining activities on the Portion 6 of the Farm Kleinfontein367
Swellendam RD**

A requirement of Section 21 (c) and (i) of the
National Water Act (36 of 1998).

June 2023



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Abbreviations

Breede-Gouritz Catchment Management Agency	BGCMA
Department of Forestry, Fisheries and the Environment	DFFE
Department of Environmental Affairs and Development Planning	DEA&DP
Department of Water Affairs and Forestry	DWAF
Department of Water and Sanitation	DWA
Environmental Impact Assessment	EIA
Government Notice	GN
Hectare	Ha
Metres Above Sea Level	masl
National Environmental Management Act (107 of 1998)	NEMA
National Water Act (36 of 1998)	NWA
Section of an Act	S
Water Use License Application	WULA

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1 Introduction

The manganese mine on portion 6 of the Farm Kleinfontein in the Swellendam registration division of the Western Cape has been idle for some time, the mining activities ceased, reportedly because of a drop in international commodity prices. Mining was financially not viable. The next upswing in the cycle of commodity prices renewed interest with the result that Kleinfontein and the mine was sold to new owners.

Mr Fritz Orren of Orren Capital in Roodepoort represents the current activities at the mine. The mining will resume as soon as the legalities have been completed and official approvals have been given. A request for official approval has already been submitted to the DMR. The DMR subsequently officially accepted the application.

The mine is not far from the Sonderend River, the main tributary of the Breede River, one of the main rivers in the Western Cape. There are two mostly dry drainage lines on the property that are recognized in terms of current legislation as legitimate water resources. One of these drainage lines skirts the toe of the mine, within the 100m controlled area, in terms of GN509, which triggered the requirement of S21(c) and S21(i) applications in terms of the NWA. A Freshwater Report was required for these applications. WATSAN Africa produced such a report (Van Driel, 2022, 2023) that was subsequently submitted to the BGCMA.

Interested and affected parties demanded that a Stormwater Management Plan be compiled as well. WATSAN Africa was appointed to draft such a plan. This Stormwater Management Plan Report must be red together with the Freshwater Report. Some of the figures were taken out of the Freshwater Report.

2 Laboratory analyses

Prior to the construction of stormwater management infrastructure, it is recommended that runoff is collected at various places downhill from and adjacent to the mine. These water samples must be analysed for dissolved manganese in its various forms, suspended manganese particles as well as any other metals or metal-containing salts in the runoff.

The Inductively Coupled Plasma (ICP) laboratory analytical equipment is probably the best to test for the presence of a range of metals that might be associated with manganese mining. This is contemporary equipment available in most water laboratories.

If the concentrations are known, it would assist in decision-making. Expenditure towards water analyses may save much larger construction costs. If concentrations prove to be low, costs for managing contaminated runoff can be reduced or avoided.

3 Swellendam Climate

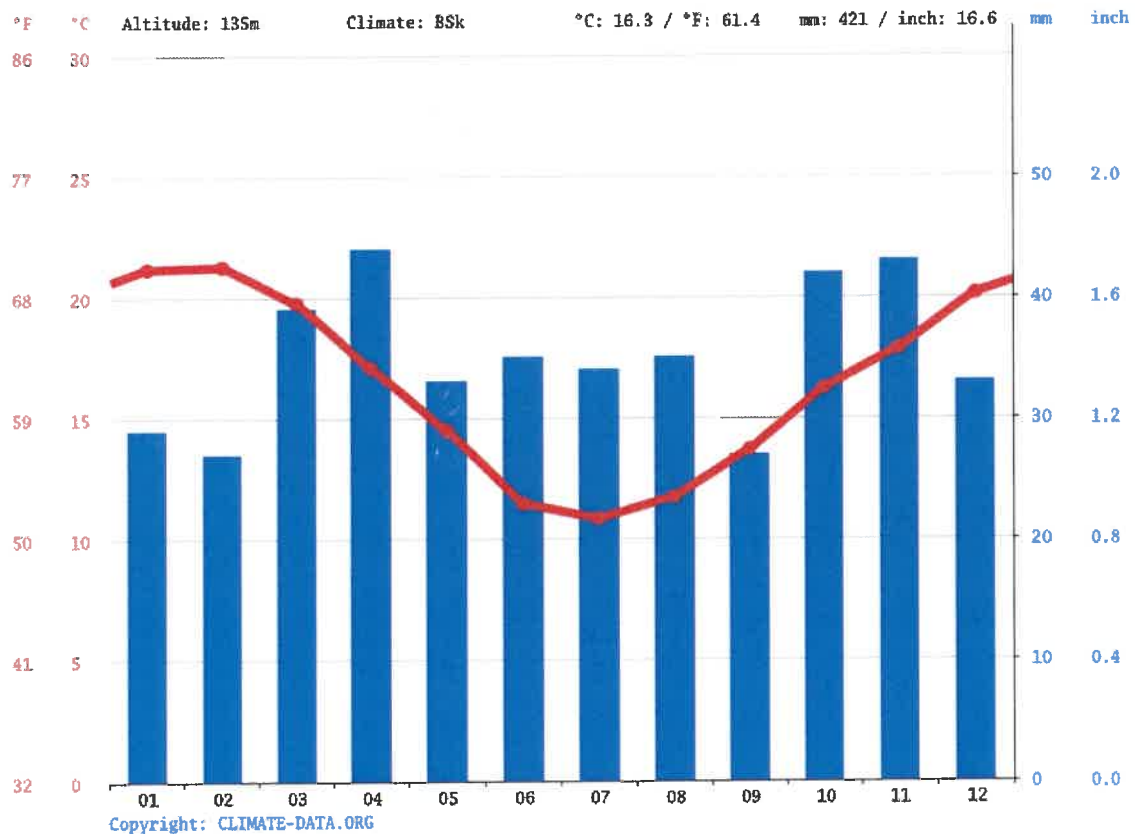


Figure 1 Swellendam climate

Swellendam is the closest locality to the mine for which online climate data is available.

The average annual rainfall is 412mm, which is spread rather evenly throughout the year (Figure 1).

This rainfall is adequate to give stormwater management at the mine and runoff some serious thought. The maximum daily rainfall may suggest that structures such as trenches, berms and sedimentation ponds may be necessary to keep contamination out of the drainage lines and out of the Sonderend River.

4 Methodology

The aim is to construct adequate stormwater infrastructure in the form of berms, trenches and retaining ponds to keep polluted runoff from the mine out of the surrounding environment such as the fruit orchards and particularly the Sonderend River.

The methodology is simple, uncomplicated, with data that is readily obtainable from the internet. The idea was to try to come to reliable answers without having to go to computer-based numerical models which are mostly very expensive to run.

The first step is to determine the surface area of the mine from which contaminated runoff can be expected.

Secondly, the monthly rainfall data (Figure 1) is observed, from which an estimation can be made what the maximum daily runoff can be. A range of high runoffs can be derived at, from which the most likely single figure can be used for the design of the stormwater infrastructure.

There are maps derived from numerical modelling that predicts where stormwater is flowing to and where it is likely to accumulate. These proved to be most useful to locate and design infrastructure.

5 Rationale and limitations

Taken against the background of the average South Africa rainfall, Swellendam and surrounds are in a relatively high rainfall area. Moreover, the Sonderend River and its tributaries can come down with enormous volumes of water. This often happens during the winter period, with occasional high rainfall event during which the river breaks its banks, with flood water over a large surface area of land. The floods are ferocious, with strong currents and high velocities, dangerous with standing waves.

At some point during ascending peak flows, the water volume coming down the river will be so high that pollutants from the mine, or for that matter from any source on the banks, will be diluted into oblivion, without detectable concentrations, despite increase pollutants being mobilised from land-based sources. This point is an estimation based on experience and is not supported by laboratory analyses.

Constructed ponds to hold runoff from the mine during these peak rainfall events are going to be very large and most expensive to construct and maintain. Smaller dams may overtop during these very large rainfall events and the runoff will end up in the river, where pollutants are probably going to be diluted beyond detection levels. Therefore, at some daily rainfall, it would not be feasible, environmentally as well as

financially, to construct larger dams. This daily rainfall figure will have to be decided upon.

6 Surface Area



Figure 2 Surface Area

The surface area of the mine, as determined with the Google Earth polygon function, demands to 7.8ha.

7 Storage dams and sedimentation ponds

These include the lined storage dam up on the slope above the mine and the 4 concrete ponds to store and circulate water for the crushing process (Figure 1).

The storage dam is filled from tanker trucks as well as out of the borehole on the site.

This water is for dust suppression on the point of impacts where rock is crushed. Water is sprayed onto the crushing rock to keep the dust down. The holding ponds allow for sedimentation of the dust that is contained and suspended in the water and then the water can be recirculated and be used repeatedly to be replenished out of the storage dam when required from time to time.

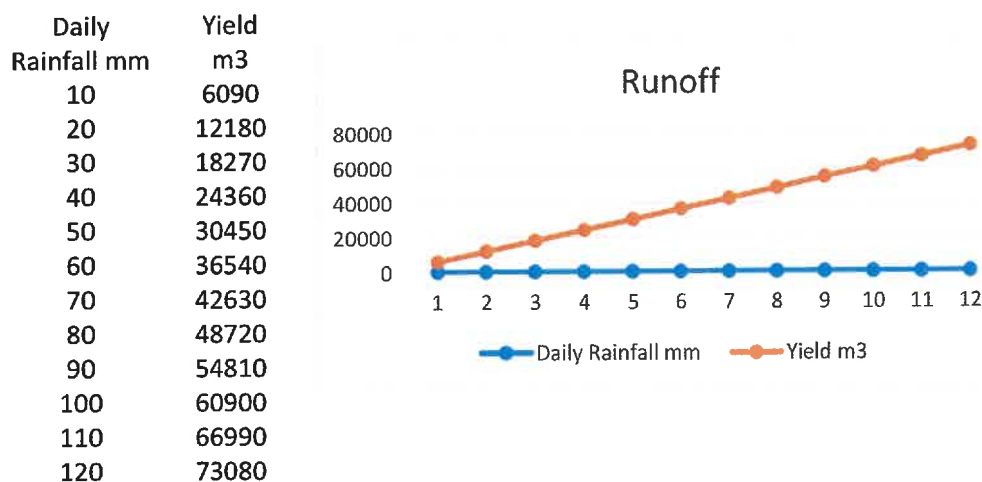
The water from these dams do not end up as part of the runoff, but the area on which they are located is part of the pollutant-producing area.

8 Daily Rainfall

The range of maximum daily rainfall is given in Table 1.

It is not unimaginable that 70mm in 24 hours occurs with a frequency of perhaps once in a two year-period. This is probably the best estimation for what worst-case scenario the infrastructure must be designed for. As has been stated before, from this point and higher, the river will come down with such a volume that alleged pollution is no longer of any significance.

Table 1 Maximum Daily rainfall and daily runoff



9 Runoff

From the surface area and the daily rainfall, the runoff can be calculated (Table 1).

It is assumed that 30% of the rainfall penetrated the ground and will not leave the mining area as runoff. Such assumptions are customary for runoff calculations. The percentage is somewhat speculative and adds to uncertainty. This, nevertheless, provides a basis for discussion among specialists to arrive at a more proven and reliable estimation.

10 Topography

The following maps are from the Western Cape Farm Mapper of the Western Cape Provincial Government.



Figure 3 5m contour map

The map illustrates that there is a ridge running through the middle of the mine in a north-westerly direction, rather flat at the top, with a steeper toe and then levelling out to the north of the mine.

The contours correspond to the Freshwater Report sub-catchment map, where this central ridge forms the divide between the two adjacent sub-catchments on the mining area.

The elevations on Figure 1 indicate that surface flow on either side of the divide is towards the west and the east away from the mine and then towards the north on both sides of the mine towards the Sonderend River.

11 Flow Direction

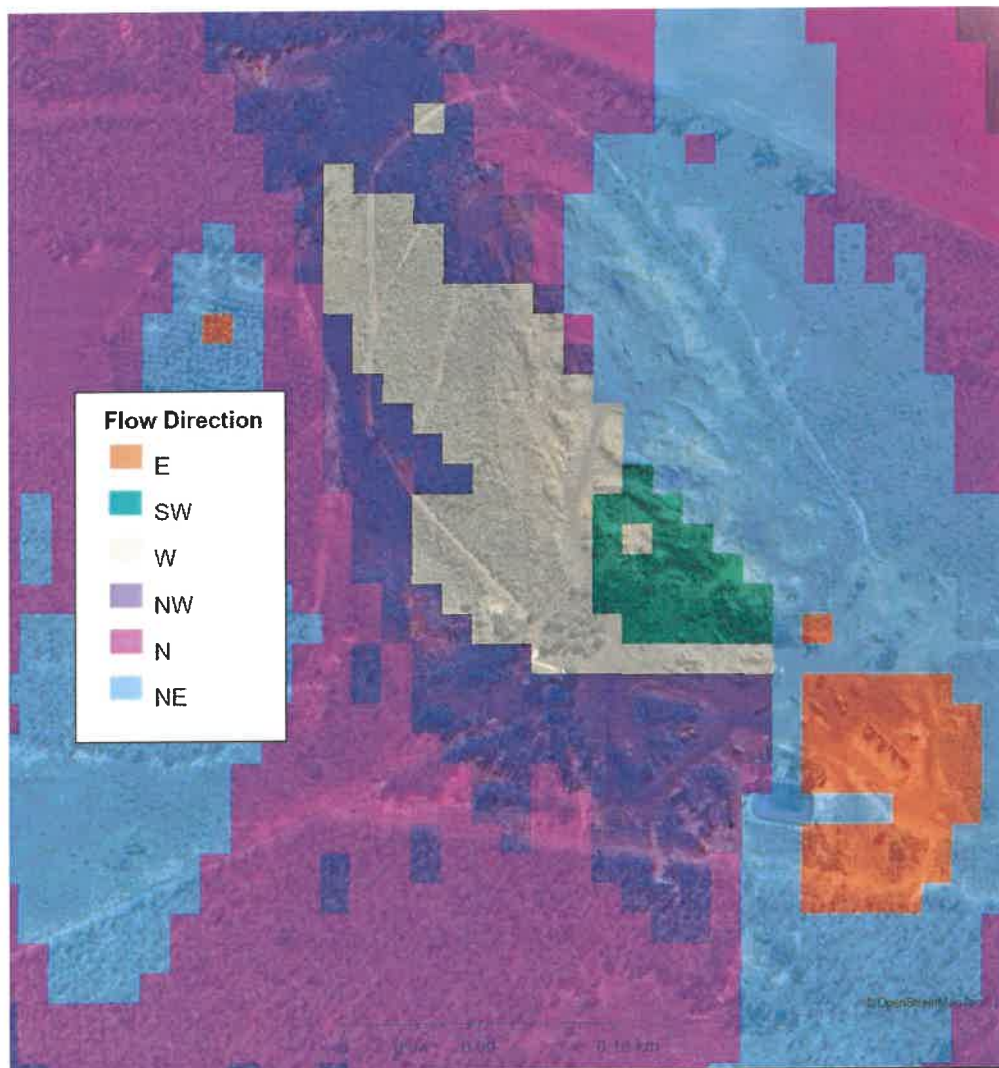


Figure 4 Flow Direction

Figure 4 indicates that more than half of the flow from the mining area flows towards the west. From there the flow is directed towards the northwest.

The flow on the eastern part of the mining area is to the northeast and then to the north.

12 Flow Accumulation



Figure 5 Accumulation

The accumulation model indicate that stormwater flows on both sides of the mining area, very much as indicated by the drainage line of the Freshwater Report. Accumulation is mainly in a north-westerly direction towards the Sonderend River.

13 Stormwater Management Infrastructure

The information from the above maps indicates that a set of trenches with berms on either side of the mining area to intercept stormwater runoff would suffice. The flow in these trenches will be directed to the northwest into a lined holding / sedimentation pond at the toe of the mining area right on the northwest boundary.

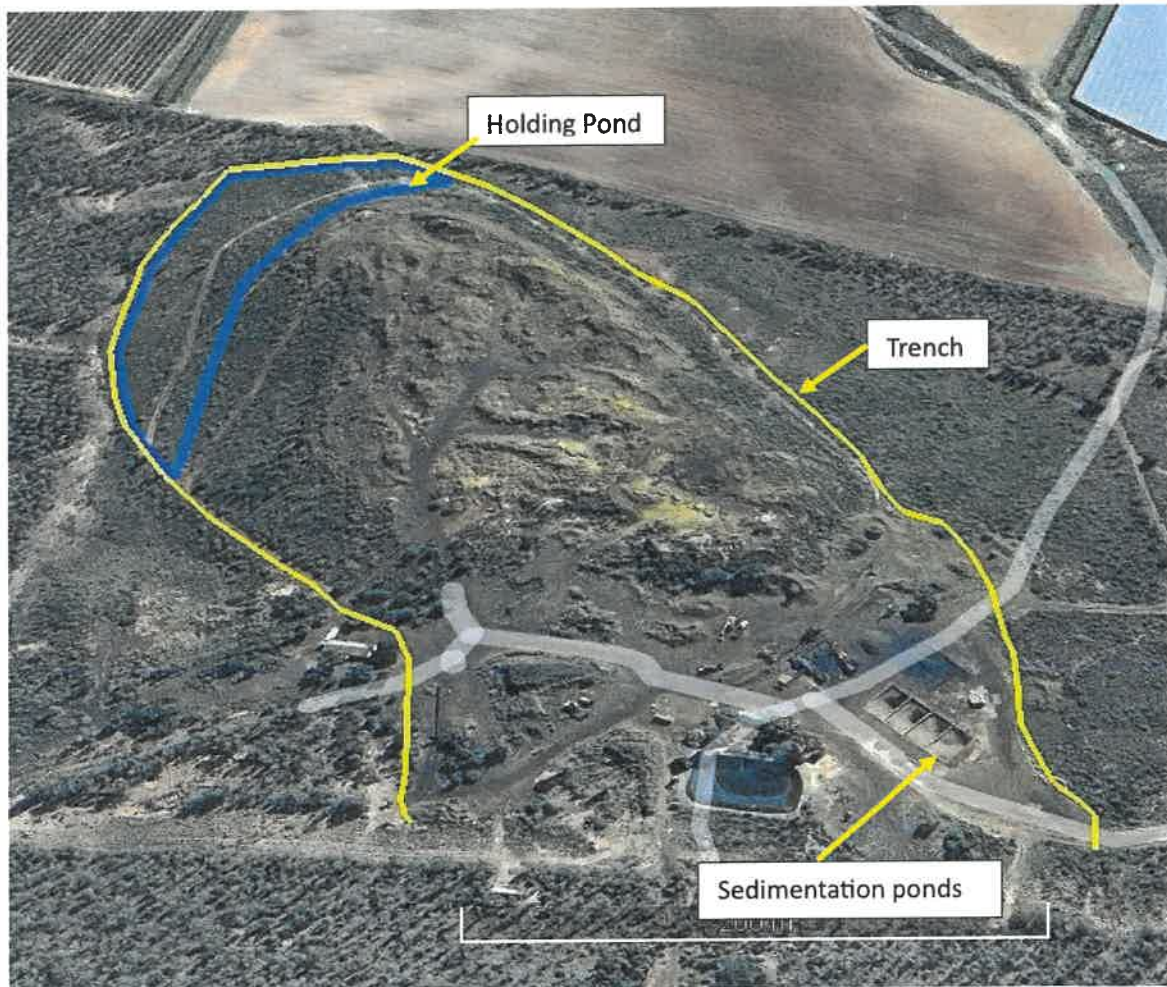


Figure 6 Trench

The hydraulic capacity of the trench can be bolstered by a berm (Figure 7) constructed out of the material dug out of the trench. The berm must be on the outward side of the trench.

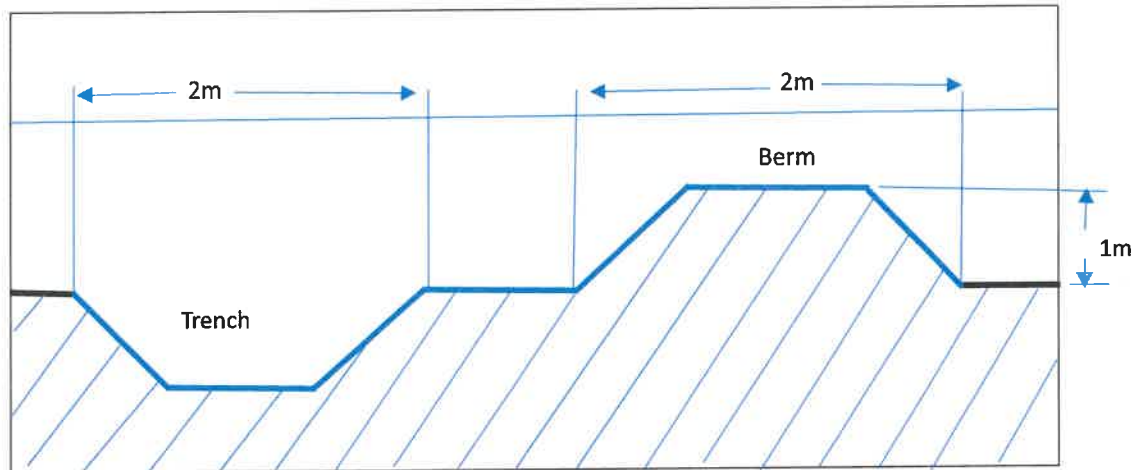


Figure 7 Trench and Berm

The stormwater holding pond can be located anywhere in the area indicated in blue (Figure 6), provided it has the required holding capacity.

As contemplated, the holding capacity should be adequate for a daily rainfall event of 70mm. Such a dam can be visualised as approximately 3m deep, 40m long and 35m wide. The shape does not really matter, provided it has the required holding capacity.

The holding pond should have a free board of 300mm and an erosion-resistant spillway that remains intact if the dam overflows.

The water in the holding can be used for dust suppression. A tanker truck with a suction pump would probably be the best way to abstract water from the holding pond.

The holding pond can be cleaned out when sediments compromise the volume. The lining should therefore be of sturdy material, say 2mm thick HDPE, that can withstand shovels and probably a mechanical digger.

The trench would be approximately 1.3km long and therefore a costly operation to construct. It is therefore necessary to test the runoff for pollutants prior to construction. If the concentrations are low, the costs and effort may not be warranted.

Uphill above the mine, it is customary to construct a cutoff trench to divert stormwater around the mine and prevent it from flowing through the mine. This was not deemed necessary, as much of the stormwater is diverted to the drainage lines on both sides of the mine. The volume of stormwater from above and down the hill is probably not enough to warrant yet another trench.

This description lays down principles rather than details, which are left for the design engineer and the contractor.

Stormwater management infrastructure must be regularly inspected for damage and erosion and must be repaired whenever necessary to keep contaminated runoff out of the environment.

The crusher's sedimentation ponds (Figure 6) must be moved to comply to DMR's 5ha requirement. The entire operation, ponds and all, must fit into 5ha. From a ground water and stormwater perspective, the move is not advantageous, as more land would be deeply disturbed, with subsequent more contaminated runoff. The ponds are best left where they currently are, without the need for relocation, undue disturbance and expansion of the stormwater management infrastructure.

14 Conclusions

A credible stormwater management plan depends on the quality of the assumptions that have been made and to what extent these assumptions are supported by data and modelling. The main assumption is that a daily rainfall event of 70mm is adequate for the design of this stormwater management plan.

The implementation of this plan is subject to the laboratory analysis of the runoff. The plan must be implemented if the pollutant concentrations exceed the South African Water Quality Guidelines for the Environment DWAF, 1997).

Apart from interested and affected parties, it is fully expected that the BGCMA will demand a stormwater management plan. It is therefore appropriate to submit this report, not only to protect the environment, but to fulfil legal obligations as well.

15 References

Department of Water Affairs and Forestry. 1997. *South African Water Quality Guidelines for the aquatic ecosystems*. Volume 7. DWAF, Pretoria.

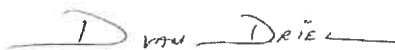
Van Driel, D. 2023. *Freshwater Report. Water Use License application. Aquatic Biodiversity Impact Assessment for resuming mining activities on the Portion 6 of the Farm Kleinfontein367 Swellendam RD*. WATSAN Africa, Knysna.

16 Declaration of Independence

I, Dirk van Driel, as the appointed independent specialist hereby declare that I:

- Act/ed as the independent specialist in this application
- Regard the information contained in this report as it relates to my specialist input/study to be true and correct and;
- Do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the NEMA, the Environmental Impact Assessment Regulations, 2010 and any specific environmental management act;
- Have and will not have vested interest in the proposed activity;
- Have disclosed to the applicant, EAP and competent authority any material information have or may have to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the NEMA, the environmental Impact Assessment Regulations, 2010 and any specific environmental management act.
- Am fully aware and meet the responsibilities in terms of the NEMA, the Environmental Impacts Assessment Regulations, 2010 (specifically in terms of regulation 17 of GN No. R543) and any specific environmental management act and that failure to comply with these requirements may constitute and result in disqualification;
- Have ensured that information containing all relevant facts on respect of the specialist input / study was distributed or made available to interested and affected parties and the public and that participation by interested and affected parties facilitated in such a manner that all interested and affected parties were provided with reasonable opportunity to participate and to provide comments on the specialist input / study;
- Have ensured that all the comments of all the interested and affected parties on the specialist input were considered, recorded and submitted to the competent authority in respect of the application;
- Have ensured that the names of all the interested and affected parties that participated in terms of the specialist input / study were recorded in the register of interested and affected parties who participated in the public participation process;
- Have provided the competent authority with access to all information at my disposal regarding the application, whether such information is favourable or not and;
- Am aware that a false declaration is an offence in terms of regulation 71 of GN No. R543.

Signature of the specialist:



27 June 2023

Dr Dirk van Driel

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Water Scientist

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Experience

USAID/RTI, ICMA & Chemonics. Iraq & Afghanistan **2007 -2011**
Program manager.

City of Cape Town **1999-2007**
Acting Head: Scientific Services, Manager: Hydrobiology.

Department of Water & Sanitation, South Africa **1989 – 1999**
Senior Scientist

Tshwane University of Technology, Pretoria **1979 – 1998**
Head of Department

University of Western Cape and Stellenbosch University 1994 - 1998 part-time

- Lectured post-graduate courses in Water Management and Environmental Management to under-graduate civil engineering students
- Served as external dissertation and thesis examiner

Service Positions

- Project Leader, initiator, member and participator: Water Research Commission (WRC), Pretoria.
 - Director: UNESCO West Coast Biosphere, South Africa
- Director (Past Deputy Chairperson): Grotto Bay Homeowner's Association
 - Past Member Dassen Island Protected Area Association (PAAC)

Membership of Professional Societies

- South African Council for Scientific Professions. Registered Scientist No. 400041/96
 - Water Institute of South Africa. Member



DUST MANAGEMENT PLAN

MINING APPLICATION AT KLEINFONTEIN

DUST MANAGEMENT PLAN

Prepared for:



ORREN
— *capital* —

Orren Capital (Pty) Ltd.

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MAY 2020

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LIST OF ABBREVIATIONS

AEL	Air Emissions License
ECO	Environmental Control Officer
DMP	Dust Management Plan
NAAQS	National Ambient Air Quality Standard
NEMA	National Environmental Management Act

1 INTRODUCTION

1.1 PURPOSE AND SCOPE OF THE DUST MANAGEMENT PLAN

The purpose of this report is to describe the measures that will be taken by Orren Capital to ensure that impacts related to dust associated with the construction of the proposed development will be avoided or, where avoidance is not possible, then mitigated. Potential sources of dust, and the required prevention and mitigation measures are described in this document.

This dust management plan addresses all dust-related impacts associated with the construction phase of the proposed project, including associated infrastructure.

1.2 OBJECTIVES

The objectives of this Dust Management Plan are as follows:

- Summarise the regulatory framework governing the management of dust associated with the mining application;
- Define roles and responsibilities for the implementation of this plan and management of dust;
- Describe measures and controls related to the management of dust during the construction phase of the proposed project;
- Provide a framework for monitoring and reporting on the management of dust during the construction and mining phases of the proposed project; and
- Describe requirements related to responding to dust-related complaints.

1.3 PROJECT DESCRIPTION

The proposed development will be constructed on 5 ha of the property (25 ha in extent) and will consist of the following infrastructure:

The type of mineral to be mined is Vanadium ore, Tin ore, Silver ore, PGMs, Nickel ore, Manganese ore, Copper ore and Chrome ore. The method that will be employed is a very basic form of open cast mining, and a 5 ha area will be demarcated for mining activities.

Subsequent mining and blasting of the orebody utilising a truck and shovel operation will be conducted. A front-end loader will be utilised to load the material of approximately into haulage trucks to the end user.

The project infrastructure and activities will include site clearance, removal of topsoil and overburden, blasting and stockpiling, site establishment, including the establishment of an access route, mobilisation of equipment and preparation of area for mining, excavation of an open cast, loading zone, loading and dust control, hauling and transporting of ore, ablution facilities and waste storage area and rehabilitation of site.

Crushing is a dry process which involve particle size reduction of large material into smaller rocks. Equipment's used for crushing of commodities are jaw crusher or cone crusher. Screening is a practice of taking granulated ore material and separating it into multiple grades by particle sizes so commodities will be screened and stockpiled in the mining area.

Ore will be moved by large trucks via the Vaandrighsdrift road to the N2. The main access road as well as newly constructed access roads (if applicable) will be adequately maintained so as to minimize dust, erosion or undue surface damage. Storm water should be diverted around the access roads to prevent erosion,

1.4 PUBLIC PARTICIPATION

This management plan has been prepared with due consideration of inputs from internal and external stakeholders and addresses dust related issues raised during the BAR process.

2 ROLES AND RESPONSIBILITIES

POSITION TITLE	ROLE	DESCRIPTION OF TASK
Contractor	Implementation Monitoring and Review	• Primary responsibility for implementing the mitigation measures presented in the BAR, in order to minimise dust generation and ensure that levels of dust comply with the regulatory requirements presented in the BAR. • Responsible for ensuring that the construction team complies with the requirements of this management plan; • Review and interpretation of monitoring data; • Keeping records of all activities/incidents on site in the Site Diary concerning the environment (including dust) and reporting these to the ECO and the applicant; • Reporting back on the environmental issues (including dust) at regular site meetings and other meetings that may be called regarding environmental matters; • Inspecting the site and surrounding areas regularly (at least once per week) to ensure compliance with the EMP as well as this Management Plan, and reporting these findings at least monthly throughout the construction phase to the ECO and the applicant; and • Ensuring that all new contractor personnel coming onto site attend the environmental awareness training courses conducted by the Contractor or other responsible personnel.
Environmental Control Officer (ECO)	Implementation and Monitoring	• Inspecting the site and surrounding areas regularly with regard to compliance with the EMP as well as this Management Plan, and reporting these findings at least monthly throughout the construction phase to the relevant environmental authorities and the applicant; • Completing start-up, monthly and site closure compliance checklists; • Keeping records of all environmental incidents on site in the Site Diary and reporting these to the applicant; • Keeping a photographic record of progress on environmental mitigation and other actions affecting the environment of the site ; • Monitoring dust as part of the monitoring programme, and ensuring that accurate records of monitoring data are kept, and shared with the applicant and the relevant environmental authorities. • Reviewing and approving construction method statements related to dust control; • Recommending and/or developing corrective actions in the event of significant non-compliance and excessive dust generation; and • Implement appropriate actions in the case of non-compliance with this plan.
Orren Capital	Implementation Monitoring and Review	• Ensure that activities on site comply with other relevant environmental legislation; • Ongoing liaison with National and Provincial Government

Kleinfontein Dust Management Plan

POSITION TITLE	ROLE	DESCRIPTION OF TASK
		agencies and regulatory authorities; • Ensure that dust control measures are implemented by the ECO and the Contractor; • Respond to any third party complaints related to excessive dust generation. • Continuously reviewing the effectiveness of the actions described in the EMP as informed by regular review of ECO monitoring reports; and • Ongoing liaison with appropriate project personnel.

3 REGULATORY REQUIREMENTS

Air quality emission standards are generally provided for point sources and specify the amount of the pollutant acceptable in an emission stream and are often based on proven efficiencies of air pollution control equipment.

Air quality guidelines and standards are fundamental to effective ambient air quality management, providing the link between the source of atmospheric emissions and the user of that air at the downstream receptor site. Ambient air quality standards and guideline values indicate safe daily exposure levels for the majority of the population, including the very young and the elderly, throughout an individual's lifetime. Air quality guidelines and standards are normally given for specific averaging or exposure periods.

This section summarises local legislation pertaining to air quality for sources and pollutants relevant to the proposed project, with the focus on dust.

3.1 THE NATIONAL ENVIRONMENTAL MANAGEMENT: AIR QUALITY ACT

As with the Atmospheric Pollution Prevention Act 45 of 1965, the objective of the Air Quality Act is to protect the environment by providing the necessary legislation for the prevention of air pollution. *"To reform the law regulating air quality in order to protect the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development while promoting justifiable economic and social development; to provide for national norms and standards regulating air quality monitoring, management and control by all spheres of government; for specific air quality measures; and for matters incidental thereto."*

According to the NEMA: Air Quality Act (AQA), an Air Quality Officer (AQO) may require the submission of an Atmospheric Impact Report (AIR) in terms of section 30, if:

- The AQO reasonably suspects that a person has contravened or failed to comply with the AQA or any conditions of an AEL and that detrimental effects on the environment occurred, or there was a contribution to the degradation in ambient air quality.
- A review of a provisional AEL or an AEL is undertaken in terms of section 45 of the AQA.

3.2 NATIONAL DUST CONTROL REGULATIONS

South Africa's National Dust Control Regulations (NDCR) were published on 1 November 2013 (Government Gazette No 36974). The purpose of the regulations are to prescribe general measures for the control of dust in all areas, including residential and light commercial areas. Acceptable dust fallout rates according to the regulations are summarised in Table 3-1.

Table 3-1: Acceptable Dust Fallout Rates

Restriction areas	Dust fallout rate (D) in mg/m ² -day over a 30-day average	Permitted frequency of exceedance
Residential areas	D < 600	Two within a year, not sequential

Kleinfontein Dust Management Plan

		months.
Non-residential areas	$600 < D < 1\,200$	Two within a year, not sequential months.

The regulations also specify that the method to be used for measuring dust fallout and the guideline for locating sampling points shall be ASTM D1739 (1970), or equivalent method approved by any internationally recognized body. It is important to note that dust fallout is assessed for nuisance impact and not inhalation health impact.

Revised Draft National Dust Control Regulations were published on 25 March 2018 (Government Gazette No. 41650) which references the same acceptable dust fallout rates but refers to the latest version of the ASTM D1739 method to be used for sampling.

4 AIR QUALITY IMPACTS

It is anticipated that the construction would not require major earthworks due to the relatively level surface. However, in spite of this, fugitive dust emissions would still be emitted, particularly in areas where vegetation has to be cleared. These emissions and associated impacts on ambient air quality within the project area could become significant if not managed and properly controlled.

The increased number of construction vehicles travelling to and from the site also has the potential to result in increased air pollution. These vehicles would potentially increase the generation of entrained dust from unpaved construction access roads, which will be exacerbated during dry or windy conditions.

A list of all the potential dust generation activities expected during the construction phase is provided in Table 4-1.

Table 4-1: Environmental impacts and associated activities during the construction phase

Impact	Source	Activity
Particulates	Unpaved roads	Vehicle entrainment on unpaved roads
		Clearing and levelling
	Project Site	Clearing of vegetation
		Materials handling (loading and hauling)
		Wind erosion from stockpiles
		Vehicle entrainment on unpaved road surfaces
		Establishment of infrastructure

The quantity of dust emissions would be assumed to be proportional to the area of land being worked and the level of construction activity.

5 MITIGATION MEASURES

5.1 GENERAL APPROACH

The IFC Environmental Health and Safety (EHS) Guidelines provide a general approach to air quality management for a facility, including the following:

- Identifying possible risks and hazards associated with the project as early on as possible and understanding the magnitude of the risks, based on:
 - The nature of the project activities; and,
 - The potential consequences to workers, communities, or the environment if these hazards are not adequately managed or controlled.
- Preparing project- or activity-specific plans and procedures incorporating technical recommendations relevant to the project or facility;
- Prioritising the risk management strategies with the objective of achieving an overall reduction of risk to human health and the environment, focusing on the prevention of irreversible and / or significant impacts;
- When impact avoidance is not feasible, implementing engineering and management controls to reduce or minimise the possibility and magnitude of undesired consequence; and,
- Continuously improving performance through a combination of ongoing monitoring of facility performance and effective accountability.

Significant impacts to air quality should be prevented or minimised by ensuring that:

- Emissions to air do not result in pollutant concentrations exceeding the relevant ambient air quality guidelines or standards. For this project national guidelines or standards are applicable, as presented in Section 3.2 above
- Emissions do not contribute significantly to the relevant ambient air quality guidelines or standards. It is recommended that 25% of the applicable air quality standards are allowed to enable future development in a given airshed.

5.2 SPECIFIC MEASURES

- The applicant and construction contractors must take all reasonable measures to minimise the generation of dust as a result of construction activities to the satisfaction of the ECO and the relevant regulatory authorities;
- Areas to be cleared of vegetation must be clearly demarcated to prevent unnecessary or accidental clearing;
- Removal of vegetation must be avoided until such time as soil stripping is required, and similarly exposed surfaces must be re-vegetated or stabilised as soon as is practically possible.
- Excavation, handling and transport of erodible materials must be avoided under high wind conditions or when a visible dust plume is present;
- Appropriate dust suppression measures must be used when dust generation is unavoidable, e.g. damping down of all exposed soil surfaces with a water bowser or sprinklers when necessary. To reduce dust dampening with water, particularly during prolonged periods of dry weather chemical binders may be used. Such measures must also include the use of temporary stabilising measures (e.g. chemical soil binders, straw, brush packs, chipping etc.);
- During high wind conditions, the contractor must evaluate the situation and make

recommendations as to whether dust-damping measures are adequate, or whether working will cease altogether until the wind speed drops to an acceptable level.

- Where possible, soil stockpiles must be located in sheltered areas where they are not exposed to the erosive effects of the wind;
- Where erosion of stockpiles becomes a problem, erosion control measures must be implemented at the discretion of the contractor and the ECO;
- Vehicle speeds shall not exceed 40km/h;
- Excavations and other clearing activities must only be done during agreed working times and permitting weather conditions to avoid sand and dust drifting into neighbouring areas;
- Truck will drive at a speed no higher than 20km/h next to fruit orchards.
- A dust monitoring programme will be implemented and the necessary steps taken to ensure compliance with the relevant quality requirements (see Table 3.1); and
- A complaints register will be implemented and any complaints related to dust will be investigated and appropriate measures taken to resolve the issue.

6 MONITORING AND REPORTING

Orren Capital will implement and maintain a dust monitoring programme for the construction and mining phases of the project. Depositional dust that may be generated from project activities (such as vehicle entrained dust, dust from general construction activities, clearing activities, etc.) must be monitored in accordance with Table 6-1 included below.

Table 6-1: Acceptable dust fall rates as measured at and beyond the boundary of premises where dust originates.

Areas	30-day average Dust fall rate (mg/m ² /day)	Frequency	Permitted Frequency of exceeding dust fall rate
Residential Area	D < 600	Monthly monitoring during the construction phase	Two within a year but not sequential months
Non-Residential Area	Sensitive Receptors D < 600 Other Areas D < 1200	Monthly monitoring during the construction phase	Two within a year but not sequential months

Ensuring that no visible evidence of windblown dust exists represents an example of a source-based indicator, whereas maintaining off-site dustfall levels to below 600 mg/m²/day represents an impact- or receptor-based performance indicator.

Monitoring will entail visual assessment of both atmospheric levels of fugitive dust and dust deposition on the surrounding vegetation. This will provide an indication of developing trends, and ensure dust management techniques remain effective by identifying any need for remedial action. Although the construction environmental officer will be responsible for performing spot checks on a regular basis, the entire construction workforce will be made aware of issues relating to dust during site health, safety and environment inductions and will be required to report any excessive atmospheric particulates resulting from their work..

7 RECORD KEEPING

All records relating to dust must be kept on file by the contractor. As a minimum, the following must be recorded:

1. Sourced based performance indicators and monitoring;
2. Any exceedances that may have been recorded;
3. Measures taken to address exceedances;
4. Any complaints received related to dust and measures taken to address these; and
5. Any modifications to the monitoring programme.

8 TRAINING AND AWARENESS

The applicant will ensure that all contractors are aware of the importance of minimising impacts on air quality as a result of construction activities and specific mitigation measures

aimed at achieving this. This will be achieved by including an element on ambient air quality in the mandatory induction training for contractors. In addition, contractors that are involved in specific activities that are likely to have a significant impact on air quality will undergo additional task-based training.

Personnel tasked with monitoring functions related to this management plan need to be subject to additional training to ensure that this function is correctly undertaken, with the required resources made available to them by the applicant.

9 MONITORING AND EVALUATION

The Applicant will ensure that this DMP is reviewed for efficacy, and any necessary changes thereto will be reflected in the periodic revisions of this document. A summary of all dust monitoring activities and outcomes will need to be included in the annual performance monitoring report. This DMP will need to be revised annually.

10 RELATED DOCUMENTS

- Complaints Register



KLEINFONTEIN MINE, SWELLENDAM

REVEGETATION & REHABILITATION PLAN

GreenAfricaGroup (Pty) Ltd.

12/07/23



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1 INTRODUCTION

Name of Applicant: Orren Capital (Pty) Ltd

Farm Name: Kleinfontein (OP04467) 367 RD
Minor Road 4553

Coordinates: 34°4'39.9" S; 20°12'10.5" E

Magisterial District: District of Swellendam, Western Cape Region
Cape Winelands

Date: August 2024

Orren Capital (Pty) Ltd has requested TPR Mining Resources (Pty) Ltd to compile a rehabilitation plan for the new proposed mining operation in support of the mining permit application. This document is compiled in accordance with the relevant legislation governing mine rehabilitation as described in the Mineral and Petroleum Resources Development Act (Act No. 28 of 2002) (MPRDA)

Orren Capital (Pty) Ltd however proposes to mine Manganese ore covering an extent of not more than 5 ha on portion of portion 6 of the farm Kleinfontein 367 RD in the magisterial district of Cape Winelands. It is assumed that approximately 5 Ha of land will be disturbed during the mining operation.

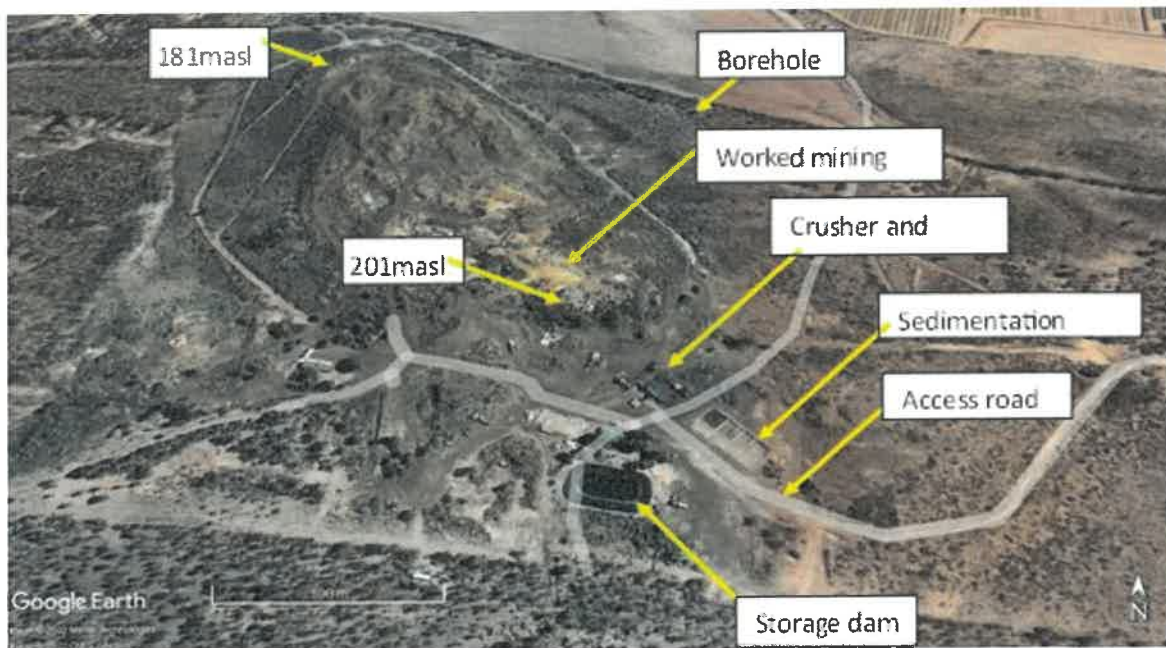


Figure 1: Map of Kleinfontein farm as used when the old mine was operational



Figure 2: The existing mining rubble as inherited from the previous owner of the Kleinfontein mine

The rehabilitation objectives for Orren Capital (Pty) Ltd Mine include: rehabilitated areas are safe, stable, non-polluting and sustainable; restore ecosystem function, including maintaining or establishing self-sustaining eco-systems comprised of local native plant species and a landform consistent with the surrounding environment; rehabilitated areas are integrated with grazing and pasture land areas that lie with the Integra leases but will not be disturbed by future mining activities; downstream water quality is preserved. Rehabilitation is progressive throughout the life of the mine and is commenced in each area as soon as practicable after it is no longer required for operational purposes; and minimize the adverse socio-economic effects associated with mine closure.

This is an existing mine that is not currently operational. It was left unrehabilitated. It should have been levelled and landscaped. If the mine is left in its current state, it would qualify as an abandoned mine. The threat persists that mining ore, dust and dissolved salts may find its way along with stormwater down the drainage lines and into the Sonderend River. Since manganese in certain concentrations is toxic to aquatic life, this can have dire consequences.

An alternative scenario is on the cards, with the new owners bound by the conditions of a new mining permit to eventually, after the mining ceased, rehabilitate the mining area to environmentally acceptable standards. It is for this scenario that possible impacts are outlined.

The mining equipment must be relocated to a space withing 5ha of mining area, to fulfil the stipulations of a mining permit. Subsequently the mining operation will resume, followed by the beneficiation of the mining ore to a substance that can be uploaded and transported to the harbors for export.



Figure 3: Hopper and conveyer of old mining activities on Kleinfontein farm

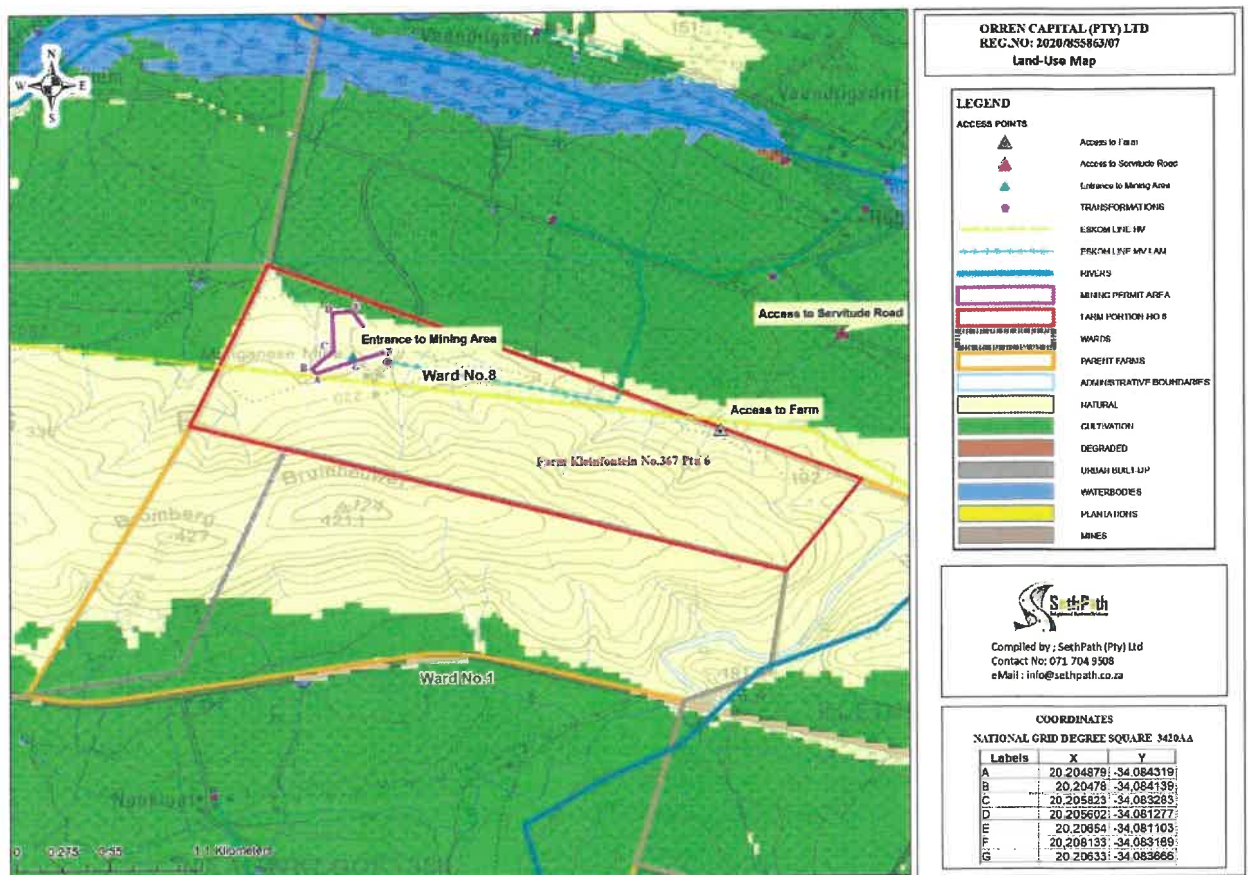


Figure 4: Map of Kleinfontein farm.

2 PURPOSE

The purpose of the rehabilitation plan is to ensure that areas cleared or impacted during mining activities of the Kleinfontein Mine are rehabilitated with a plant cover that reduces the risk of erosion from these areas as well as restores some ecosystem function. The purpose of the rehabilitation plan for the site can be summarized as follows:

- Achieve long-term stabilization of all disturbed areas to minimize erosion potential.
- Re-vegetate all disturbed areas with suitable local plant species.
- Minimize visual impact of disturbed areas.
- Ensure that disturbed areas are safe for future uses.

This Revegetation and Rehabilitation Plan should be closely aligned with other site-specific plans, including the Erosion Management Plan, Soil Management Plan, Alien Plant Management Plan, and Plant Rescue and Protection Plan. Prior to commencement of construction, a detailed Rehabilitation Plan and Method Statement for the site should be compiled with the aid of a Rehabilitation Specialist.

3 RELEVANT ASPECTS OF THE SITE

The site is considered to be part of the Southwest Fynbos bioregion and forms part of the Fynbos biome, located within what is now known as the Core Region of the Greater Cape Floristic Region (GCFR; Manning & Goldblatt 2012). The GCFR is one of only six Floristic Regions in the world, and is the only one largely confined to a single country (the Succulent Karoo component extends into southern Namibia). It is also by far the smallest floristic region, occupying only 0.2% of the world's land surface, and supporting about 11500 plant species, over half of all the plant species in South Africa (on 12% of the land area). At least 70% of all the species in the Cape region do not occur elsewhere, and many have very small home ranges (these are known as narrow endemics). Many of the lowland habitats are under pressure from agriculture, urbanization and alien plants, and thus many of the range restricted species are also under severe threat of extinction, as habitat is reduced to extremely small fragments.

The Kleinfontein mine is situated in a rocky outcrop in a picturesque area next to the Vaandrighs Drift minor road. From a botanical and geological perspective, the area is characterized by diverse landscapes and a rich variety of plant species.

Cape Fold Mountains: Swellendam is situated within the Cape Fold Belt, a geological formation known for its complex folding and faulting. This mountainous terrain has resulted from millions of years of tectonic activity, and it gives rise to the region's diverse topography.

The geological formations in this area primarily consist of sedimentary rocks, including sandstone and shale. These rocks are notable for their varied colors and patterns, which contribute to the region's scenic beauty.

In addition to the predominant fynbos, you can also find pockets of renosterveld in the Swellendam area. Renosterveld is another unique vegetation type in the Cape Floristic Region, with a distinct set of plant species.

In summary, the area around the mine offers a fascinating blend of geological formations, including the Cape Fold Mountains and sedimentary rocks, and a remarkable botanical diversity, with the fynbos biome and its unique plant species taking center stage. This combination of geological and botanical features makes the region a haven for nature enthusiasts, botanists, and researchers interested in the unique ecosystems of the Cape Floristic Region

Only local indigenous species should be used for rehabilitation of disturbed areas of natural vegetation. Because many of the species in the area are not commercially available it would be better to suggest that whoever is responsible for the rehabilitation should approach the ecologist with a list of potential species that they can source, in order to check that they are suitable for the site.

4 RECOMMENDED SPECIES TO USE FOR REHABILITATION

Only local endemic species should be used for rehabilitation of disturbed areas of natural vegetation. Because many of the species in the area are not commercially available it would be better to suggest that whoever is responsible for the rehabilitation should approach the ecologist with a list of potential species that they can source, in order to check that they are suitable for the site. See attached species list.

5 REHABILITATION METHODS

We recommend the following rehabilitation methods:

- Immediately after replacing topsoil in disturbed areas, the soil surface must be revegetated with a suitable plant cover.
- It is expected that soil seed banks of indigenous vegetation will be present to initiate initial vegetation cover. However, simply applying this topsoil to a well-prepared rehabilitation site does not result in the same species richness and diversity as the surrounding areas. In some areas the natural regeneration of the vegetation may be poor and the application relevant of seed to enhance vegetation recovery may be required.
- Where possible, seed should be collected from plants present at the site during plant rescue operations. Indigenous seeds may also be harvested for purposes of re-vegetation in areas that are free of alien or invasive
- vegetation, either at the site prior to clearance or from suitable neighboring sites.
- Seed collection should be undertaken by a suitably qualified specialist who is familiar with the various seed types associated with the plant species and rehabilitation in the area.
- Seed collection may be done throughout the year as seed ripens, but can also be restricted to summer, when a large amount of the perennial seed should have ripened. The collection of unripe seeds will reduce the percentage germination thereby reducing the effectiveness of the rehabilitation efforts. Seeds should be stored in paper or canvas bags dusted with insecticide, and sown at the onset of the rainy season.

- Seed can be sown onto the soil, but should preferably be applied in conjunction with measures to improve seedling survival such as scarification of the soil surface or simultaneous application of mulch. Additional organic material may be added to the soil mix, if required, to assist with water retention during the early stages of seedling establishment.
- It should be ensured that the seed mix is as diverse as possible in the first season. After the first season, when pioneer plant communities have successfully established, attempts should be made to re-sow and replant the area with more perennial and woody species. It is a process that will require several follow-ups.
- Planting is dependent on species involved. Planting of species recommended for rehabilitation should be carried out as far as is practicable to coincide with the onset of the first significant rains. In general, however, planting should commence as soon as possible after construction is completed in order to minimize the potential for erosion.
- The final vegetation cover should resemble the original (non-encroached and indigenous) vegetation composition and structure as far as practicably possible.
- Progressive rehabilitation is an important element of the rehabilitation strategy and should be implemented where feasible. Re-vegetation of disturbed surfaces must occur immediately after construction activities are completed.
- Once revegetated, areas should be protected to prevent trampling and erosion.
- No construction equipment, vehicles or unauthorized personnel should be allowed onto areas that have been vegetated.
- Where rehabilitation sites are located within actively grazed areas, they should be fenced, this must be undertaken in consultation with the landowner.
- Fencing should be removed once a sound vegetative cover has been achieved.
- Any runnels, erosion channels or wash aways developing after revegetation should be backfilled and consolidated and the areas restored to a proper stable condition.

6 MONITORING AND FOLLOW-UP ACTION

Throughout the lifecycle of the development, regular monitoring and adaptive management must be in place to detect any new degradation of rehabilitated areas. During the construction phase, the Environmental Officer (EO) of the EPC Contractor will be responsible for initiating and maintaining a suitable monitoring system. Once the development is operational, the Proponent will need to identify a suitable entity that will be able to take over and maintain the monitoring cycle and initiate adaptive management as soon as it is required. Monitoring personnel must be adequately trained.

The following are the minimum criteria that should be monitored:

- Composition and density of replanted vegetation, distinguishing between species introduced for initial revegetation only and species that are part of the pre-determined desirable end state.
- Associated nature and stability of surface soils
- Re-emergence of alien and invasive plant species. If noted, remedial action must be taken immediately.

The initial revegetation period post construction is estimated to be over a period of 6 months (minimum) to 12 months (maximum), or a time period specified by the rehabilitation specialist, particularly if planting of trees and shrubs occurs. The rehabilitation phase (including post

seeding maintenance) should be at least 12 months (depending on time of seeding and rainfall) to ensure establishment of an acceptable plant cover is achieved (excluding invasive plant species or weeds).

As rehabilitation success, monitoring and follow-up actions are important to achieve the desired cover and soil protection. The following monitoring protocol is recommended:

- Re-vegetated areas should be monitored every 46 months for the first 12 months following construction.
- Re-vegetated areas showing inadequate surface coverage (less than 20% within 12 months after re-vegetation) should be prepared and re-vegetated;
- Any areas showing erosion, should be re-contoured and seeded with indigenous grasses or other locally occurring species which grow quickly.

If the plants have not established and the acceptable plant cover is not achieved within the specified maintenance period, maintenance of these areas shall continue until an acceptable plant cover is achieved (excluding alien plant species or weeds). Additional seeding or planting may be necessary to achieve acceptable plant cover. Hand seeding may have to be considered as an option in this case.

Monitoring of rehabilitation success and follow-up adaptive management, together with clearing of emerging alien plant species should continue for as long as considered necessary.

7 THE REHABILITATION MANAGEMENT PLAN

This Rehabilitation Management Plan (RMP) forms part of a series of Environmental Management Plans for the mine. The plans address environmental issues requiring management as determined through those prescribed by relevant authorities and internal risk management processes. This Rehabilitation Management Plan outlines the actions required and personnel responsible in order for the company to effectively manage rehabilitation as well as through the implementation of audits and reviews, establish of a process for continual improvement of rehabilitation perform

8 SCOPE

The purpose of this RMP is to consolidate, list and reference the relevant approved documents to demonstrate progressive and effective rehabilitation for the Integra Mine Complex. It has been developed to:

- facilitate the management of rehabilitation issues;
- ensure compliance with regulatory requirements;
- improve environmental performance;
- and meet stakeholder and community expectations

9 OBJECTIVES AND OUTCOMES

The rehabilitation objectives for the company include:

- rehabilitated areas are safe, stable, non-polluting and sustainable;
- restore ecosystem function, including maintaining or establishing self-sustaining ecosystems comprised of local native plant species and a landform consistent with the surrounding environment;
- downstream water quality is preserved.
- rehabilitation is progressive throughout the life of the mine and is commenced in each area as soon as practicable after it is no longer required for operational purposes; and
- minimise the adverse socio-economic effects associated with mine closure.

The outcomes are:

- the end land use is safe, stable, non-polluting and sustainable;
- the rehabilitated land is self-sustaining or maintenance requirements are consistent with the agreed post mining land use(s);
- achievement of an acceptable post disturbance land use capability/suitability; downstream water quality is preserved.

10 ENVIRONMENTAL POLICY

The company has and is committed to an Environmental Policy which states:

- We are committed to the development of a positive culture where we are responsible and accountable for our actions at all levels of our business.
- We are committed to operating in an environmentally responsible and safe manner through the application of Operating Philosophy and Environmental Management System for;
- Complying with applicable environmental laws, regulations and statutory obligations; Communicating regularly with stakeholders; and making environmental considerations an integral part of our activities.
- Copies of the policy are displayed in prominent positions across the site and further communicated through inductions and training. Copies of the policy are also included in public documentation such as the Annual Environmental Management Report (AEMR).

11 LEGAL AND OTHER REQUIREMENTS

11.1 Legal Requirements

Relevant legislation governing mine rehabilitation, closure cost assessment (closure provision) and closure planning is described in the Mineral and Petroleum Resources

Development Act (Act No. 28 of 2002) (MPRDA) Section 24P of NEMA, as amended by the National Environmental Management Laws Amendment Act, 2014 (Act No 25 of 2014) (NEMLA).

- The definition for environmental management plan as stated in the MPRDA is 'means a plan to manage and rehabilitate the environmental impact as a result of prospecting, reconnaissance, exploration or mining operations conducted under the authority of a reconnaissance permission, prospecting right, reconnaissance permit, exploration right or mining permit, as the case may be.' Reference is also made to the MPRDA Regulations 53 – 57 and 60 – 62.

12 COMPILATIONS

The rehabilitation plan compiled for the proposed project has followed the above methodology and details the following:

- Statutory requirements, both at a national and international level;
- Soil and overburden management;
- Vegetation and fertilizer management;
- Alien invasive control plan; and
- Monitoring criteria and guidelines.

13 LAND PREPERATION

The aim of land preparation is to ensure that the area impacted is kept to an absolute minimum. The mining activities need to be designed with closure in mind. Top soil stockpile areas must be demarcated as no-go areas.

13.1 Vegetation Conservation

Vegetation must be removed and stockpiled together with the topsoil so as to preserve the organic content in the soil as well as the seed bank for the replacement of soil and re-vegetation. The occurrence of protected plant species will need to be determined before vegetation is removed and the required permits will be obtained for either destruction or relocation.

13.2 Soil Stripping

To reach the Sand(general) reserves, the mining process may need to remove the topsoil, sub-soil soft overburden and hard overburden. This section explains the correct measures that should be followed during the stripping of soil. This is a key rehabilitation activity as lost soils cannot be regenerated in the lifetime of the mining activities. Correct stripping of soils will firstly ensure that enough soils are available for rehabilitation and secondly, that the soils are of adequate quality to support vegetation growth and thus ensure successful rehabilitation.

13.3 Soil Stripping Depths

The topsoil of the soil profile can be stripped to a total depth of 0.3m and stockpiled separately from the sub soil as this is where the seed bank is. The subsoil approximately

0.7 – 0.9 m thick will then be stripped and stockpiled separately. The maximum estimated volume of topsoil that will be stripped over 5ha is 15,000m³.

13.4 Soil Stripping Method

Soils should be stripped and replaced using the truck and shovel method as far as possible. This method will limit the compaction of soils. If bowl scrapers are used, then the soils must be dry during stripping to minimise compaction. The best time for stripping of soils is when soil moisture content is lowest which will be during the dry season.

13.5 Soil Stripping Supervision

Supervision by an environmentalist (or trained supervisor) must be done to ensure that the soils are being stripped from the correct areas and to the correct depths, and placed on the correct stockpiles with a minimum of compaction. Soils are most susceptible to compaction when the moisture content is high. To ensure that rehabilitated plants are regularly watered, the winter months (April - August) are more suitable for planting and the stripping and replacement of soils. However, when soils have to be moved during wet months, then special care should be taken to adopt methods that cause minimum compaction.

13.6 Soil Stockpiling

This section explains the correct measures to be followed during the stockpiling of soil. Stockpiling should be minimised as far as possible as it increases compaction and decreases the viability of the seed bank.

13.7 Stockpile Locations

- **Compaction Avoidance**

Soils should be stockpiled loosely. Achieving this will depend on the equipment being used during the stripping and stockpiling process. Soils should be dumped in a single lift if truck and shovel methods are used. If the dumps are too low, then the height could be increased by

using a dozer blade or backwater bucket to raise the materials. Generally, no higher than 4m is the prescribed stockpile height (Tanner et. al., 2007).

- Topsoil Stockpile Vegetation.

The stockpiles are potentially going to be in place for the life of the project and will be used to rehabilitate the disturbed area. Vegetation should be allowed to establish itself in situ on the topsoil stockpiles to avoid soil loss due to erosion and weed colonisation as well as fertility loss. Should vegetation not establish itself, then fertilisers will need to be applied into the stockpile to vegetate. A similar seed mixture to the final one recommended for rehabilitation should be used.

13.8 Topsoil and Subsoils Stockpile Maintenance and Monitoring

Once established, stockpiles should be managed to ensure that losses from the piles are minimised and that additional damage the physical, chemical or biotic component is minimised. It must be ensured that the stockpiled soil is only used for its intended purpose. The topsoil stockpiles must be clearly demarcated as “No Go” zones and monitored frequently.

Employee awareness programmes are to be carried out to reduce the risk of stockpile “robbery” / unauthorized use or contamination. The topsoil stockpile must remain vegetated at all times. The vegetation must be monitored and managed accordingly to avoid erosion losses.



Figure 5: Plantations and orchards downstream of the mine

14 REHABILITATION ACTIONS

The actions contained within this section are to be implemented at closure. The report and its associated costing have been based upon DMR guidelines set out by the Department of Minerals Resources (2005) in the “Guideline Document for the Evaluation of the Quantum of Closure-Related Financial Provision Provided by a Mine”. The guidelines outline the methods for rehabilitation required for closure, and the actions which are described below follow these guidelines.

14.1 Opencast Area Rehabilitation

It is assumed that approximately 5ha of land will be disturbed during the mining operation. The purpose of pit closure is to ensure the pits become safe for humans and animals and for the purpose of the liability assessment it has been assumed that the shaping of the pit area slopes will be undertaken during the operational phase of the mine to reduce closure costs. After the mining activities are completed, up to 300mm thick of topsoil will be spread on the disturbed areas. Once placed, the “soil” should then be ripped, fertilised, and re- vegetated.

14.2 Tailings Dam

The tailings dam will be removed at closure. The plastic lining must be removed and can be recycled. The earth walls will be flattened and the area profiled. The pipes associated with the dam must be removed and if possible, sold.



Figure 6: Storage dam present on Kleinfontein farm

14.3 Stockpile Area

It is assumed that all the material from the stockpile area will be taken for processing and cost has been allocated to rip the footprint, reshape the surface and vegetate

14.4 Access Roads

Access roads around the site should be ripped for all areas except those needed to access the facilities for inspection after closure. Roads that can and will be used by other users post closure should, however, be left provided this is agreed upon by all parties concerned. For the rehabilitation of roads, a cost has been allocated to rip the area, add 300 mm topsoil and vegetate.

15 BIOPHYSICAL CLOSURE AND REHABILITATION

15.1 Final Landform and Ecological Functionality

The open cut area will be reshaped to create a gently sloping, free-draining topography during the operational phase. The topsoil and sub soil that was removed during the construction phase should be returned/replaced (as the final top layer), fertilised and ripped. After these tasks have been completed the open cut site can be included in the rehabilitation process for re-vegetation, monitoring and maintenance.

15.2 Soil Replacement

Once the final land-form has been created, soil replacement can begin. All the stripped soil types are to be replaced into the original locations of the soils.

15.3 Compaction Avoidance

Compaction limits the effectiveness of replaced soils. The equipment used during the replacement of the soils has a major impact on the compaction levels. Ideally heavy machinery should not be used to spread and level soils during replacement. The truck and shovel method should be used since it causes less compaction than, for example, a bowl scraper. When using trucks to deposit soils, the full thickness of the soil required can be placed in one lift. This does, however, require careful management to ensure that the correct volumes of soil are replaced. The soil piles deposited by the trucks will have to be smoothed before re-vegetating the area.

15.4 Soil Amelioration

Replaced soils require both physical and chemical amelioration as the actions of soil removal, stockpiling and replacement result in high levels of soil compaction and a dilution of the fertility of the soil originally present and concentrated in the surface layers. The actions that should be taken during the amelioration of soils are as follows:

- The deposited soils must be ripped to ensure reduced compaction;

- An acceptable seed bed should be produced by surface tillage;
- Restore soil fertility;
- Incorporate the immobile fertilisers in to the plant rooting zone before ripping; and
- Apply maintenance dressing of fertilisers on an annual basis until the soil fertility cycle has been restored.

16 REVEGETATION AND BIODIVERSITY ESTABLISHMENT

16.1 Aims and Objectives

The main aim of re-vegetation for the study area is to restore the area to the indigenous Bushveld. It is advised to restore the study area as far as possible to a stable and sustainable ecosystem. The overall objectives for the re-vegetation of reshaped and top-soiled land are to:

- Prevent erosion;
- Restore the land to the agreed land capability;
- Re-establish eco-system processes to ensure that a sustainable land use can be established without requiring fertilizer additions; and
- Restore the biodiversity of the area as far as possible

16.2 Rehabilitation Species

The rehabilitation “seed cocktails” generally consist of grasses as they rapidly establish and provide excellent protection against surface erosion.

16.3 Revegetation

The rehabilitated areas need to be stabilised with vegetation, mainly grasses at first. Long-term post-closure rehabilitation will allow the re-vegetation of the grasses, bushes and trees.

The recommended approach, for which the costing has been derived, is as follows: Lime and superphosphate must be applied to the surface

These ameliorants are then incorporated by deep ripping, which penetrated 100mm through the soil into the underlying overburden material

Compound (NPK + Zn) fertilizer must be applied, and diced in as part of seedbed Preparation

16.4 Air Quality

Re-vegetation is critical for acceptable closure of the area and to achieve sustainable and good air quality. It is recommended to minimise the erosion to reduce the potential for fugitive dust generation.

16.5 Maintenance and Aftercare

Maintenance and aftercare must be planned for 2-3 years after the land preparation and replanting of vegetation has been completed. Maintenance will specifically focus on annual fertilising the rehabilitated area, control of all other alien plants and general maintenance, including rehabilitation of cracks, subsidence and erosion gullies. Continuous erosion monitoring of rehabilitated areas and slopes should be undertaken and zones with excessive erosion should be identified. The cause of the erosion should be identified, and rectified. Zones with erosion will need to be repaired with topsoil and re-vegetated.

16.6 Long Term Water Issues

Each mining operation has an effect on the ground and surface water regimes. These effects vary greatly according to the mining operation and the geological setting of the operation. This report did not attempt to quantify the groundwater impacts or the mitigation thereof. These impacts and their mitigation cannot be accurately predicted without the availability of a detailed hydrogeological study of the area, resulting in this omission. Post-Closure Monitoring and Management. The purpose of monitoring is to ensure that the objectives of the rehabilitation programme are met and that the rehabilitation process is followed.

16.7 Groundwater and Surface Water

The post-closure monitoring should take place for five years or until a long-term acceptable trend can be determined.

The following recommendations have been suggested for post mining rehabilitation and monitoring of the proposed development area. Biodiversity assessments mid wet season should be undertaken by a qualified ecologist / botanist to monitor the rehabilitation progress with regards to flora.

17 CONCLUSIONS AND RECOMMENDATIONS

The Rehabilitation Plan and Closure Cost Calculation was based on an estimate was made based on previous experience.

The recommendations, based on the compilation of the liability assessment are as follows:

- Hydrogeological studies should be conducted for the mining area to define the post-closure influence of the mining on the groundwater quality on the farm, and its likely impact on the surrounding areas;
- Concurrent rehabilitation must be conducted where possible so as to reduce the liability burden when the mine ceases to operate; and
- The liability figures need to be updated on an annual basis as required by the DMR.

This will ensure that all costs become more accurate over time and will reflect current market conditions.

17.1 Stakeholders

Regular consultation has been held and will continue to be held with the relevant Government, community and surrounding stakeholders in regard to all aspects of both the Open Cut operations. In addition, and in accordance with relevant legislation.

Relevant stakeholders include:

DMR:

Langeberg Municipality;

Winelands District Municipality;

DFFE:

Mine Site Neighbours:

Local Community:

17.2 Environmental Management Controls

The description of environmental management controls as required by Guidelines to the Mining, Rehabilitation and Environmental Management Process are described in the following Plans (EMP). These Plans provide the necessary detail for the management and mitigation measures to be adopted for the Mine to ensure overall environmental management is undertaken in accordance with the relevant approvals.

17.3 Competence, Training and Awareness

All personnel shall undergo rehabilitation management awareness training. Rehabilitation Management shall be a component of the competency-based site induction program. The following areas shall be covered in induction:

- Importance of rehabilitation; and
- Requirements for rehabilitation

The Environmental Advisor shall be responsible for ensuring the appropriate rehabilitation management training is included in the induction.

17.4 Roles and Responsibilities

Table 1: Roles and Responsibilities

Role	Responsibilities
Operations Manager	Must ensure adequate resources are available to enable implementation of this rehabilitation management plan

Operations Manager (or equivalent)	The Manager of Mining Engineering is accountable for the overall environmental performance of the Integra Manganese ore Operations, including the outcomes of this rehabilitation management plan.
Superintendents	Accountable for ensuring all employees in the respective areas are committed to and implement the requirements of rehabilitation management at Integra as defined in this procedure.
Environmental Advisor	Responsible for providing consultative advice and facilitating training where required for rehabilitation management at Integra. Ensure rehabilitation management training is included in the induction.
All personnel	Responsible for ensuring the Rehabilitation Management Plan is complied with in all respects.

17.5 Review

The review of this document will be in line with the sites Environmental Management Strategy. A review will be conducted yearly after the Independent Environmental Audit and/or as required by relevant consent conditions. The purpose of the review is to ensure that the RMP remains suitable, adequate and effective. In addition, if changes to the relevant documented Plans relevant to rehabilitation are amended, this Plan will also be reviewed and updated.

Reporting for rehabilitation will be included in the Annual Review.

18 PROJECT MANAGEMENT

When mining of Vanadium ore, Tin ore, silver ore, PGMs, Nickel ore, Manganese ore, Copper ore and Chrome ore ceases, mine facilities and the site is reclaimed and closed. The goal of mine site reclamation and closure should always be to return the site to a condition that most resembles the pre-mining condition. Mines that are notorious for their immense impact on the environment often made impacts only during the closure phase, when active mining operations ceased. These impacts can persist for decades and even centuries.

Table 2: Project phase with the activities, expertise and duration associated with it.

Phase	Activity	Expertise Required	Duration
Construction	Logistical consultation with land owner. Maintenance of Access Road Maintenance of existing office and security dwellings Establish mobile ablution facility, Maintenance if existing pollution control dam and dirty water trench, Construction of berm	Project Manager Contractor	2 Months
Operational	Minimal clearance of vegetation Mining area (Open-cast) Temporary stockpiling of material (Topsoil stockpile, overburden and ROM) Loading and hauling to the stockpile area and Rehabilitation	Project Manager Surveyor	20 months
Decommission and closure	Removal of mine infrastructure Rehabilitation of excavations and disturbed land Re-vegetation of land Closure report and application for closure certificate	Contractor Environmentalist	2 Months

Post closure monitoring	Monitor rehabilitation sustainability and liaising with land owner on matters requiring action.	Project manager	2 years
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19 REHABILITATION OF ACCESS ROADS

- Whenever a mining permit is suspended, cancelled or abandoned or if it lapses and the holder does not wish to renew the permit, any access road or portions thereof, constructed by the holder and which will no longer be required by the landowner/tenant, shall be removed and/or rehabilitated to the satisfaction of the Regional Manager
- Any gate or fence erected by the holder which is not required by the landowner/tenant, shall be removed and the situation restored to the pre mining situation.
- Roads shall be ripped or ploughed, and if necessary, appropriately fertilized (Based on a soil analysis) to ensure the re-growth of vegetation. Imported road construction materials which may hamper re-growth of vegetation must be removed and disposed of in an approved manner prior to rehabilitation.
- If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a seed mix to the Regional Manager's specification.

20 REHABILITATION OF EXCAVATED AREAS

- The excavated area must serve as a final depositing area for the placement of overburden.
- The topsoil of the soil profile can be stripped to a total depth of 0.3m and stockpiled separately from the sub soil as this is where the seed bank is. The subsoil approximately 0.7 – 0.9 m thick will then be stripped and stockpiled separately. The maximum estimated volume of topsoil that will be stripped over 5ha is 15,000m³.
- Rocks and coarse material removed from the excavation must be dumped into the excavation.
- No waste will be permitted to be deposited in the excavations.
- After the mining activities are completed, up to 300mm thick of topsoil will be spread on the disturbed areas. Once placed, the "soil" should then be ripped, fertilised, and re-vegetated.

- Once excavation have been refilled with overburden, rocks and coarse natural materials and profiled with acceptable contours and erosion control measures, the topsoil previously stored shall be returned to its original depth over the area.
- The area shall be fertilized if necessary to allow vegetation to establish rapidly. The site shall be seeded with a local or adapted indigenous seed mix in order to propagate the locally or regionally occurring flora
- If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analyzed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a vegetation seed mix to his or her specification.
- The open cut area will be reshaped to create a gently sloping, free-draining topography during the operational phase. The topsoil and sub soil that was removed during the construction phase should be returned/replaced (as the final top layer), fertilized and ripped. After these tasks have been completed the open cut site can be included in the rehabilitation process for re-vegetation, monitoring and maintenance.

21 FINAL REHABILITATION

- All infrastructure, equipment and other items used during the mining period will be removed from the site (section 44 of the MPRDA)
- Waste material of any description, including receptacles, scraps, rubble and tyres, will be removed entirely from the mining area disposed of at a appropriately licensed waste disposal facility. It will not be permitted to be buried or burned on the site.
- Weed / Alien clearing will be done in a sporadic manner during the life of the mining activities. Species regarded as Category 1 weeds according to CARA (Conservation of Agricultural Resources Act, 1983 – act 43; Regulations 15 and 16 (as amended in March 2001) need to be eradicated from the site on Final closure.
- Maintenance and aftercare must be planned for 2-3 years after the land preparation and replanting of vegetation has been completed. Maintenance will specifically focus on annual fertilizing the rehabilitated area, control of all other alien plants and general maintenance,
- Final rehabilitation shall be completed within a period specified by the Regional Manager.

22 EXIT STRATEGY

The excavated sites will be rehabilitated immediately following the conclusion of the mining activities. The rehabilitation process is summarized as follows:

- The excavation machines will be removed from the site
- The sumps will be pumped empty and the oil and sludge disposed of at a registered disposal facility
- The waste water will be removed from site and treated at a registered water treatment facility;
- All waste will be removed from site and disposed of at a registered waste disposal facility depending on the type of waste generated like general waste and hazardous will be removed separately;
- The sump liner will be removed and reused at another site, following the inspecting of the liner, or disposed of at a registered disposal facility;
- The sumps will be backfilled and levels;
- The site will be levelled and ripped to ensure there is no compaction.
- The topsoil will be spread over the site and the site vegetated with indigenous vegetation; and;
- The site will be monitored for the success of the rehabilitation;



KLEINFONTEIN MINE, SWELLENDAM

**INVASIVE ALIEN SPECIES CLEARING
PLAN**

GreenAfricaGroup (Pty) Ltd.

12/07/23



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TERMS AND CONCEPTS

Invasive alien plant

Plants that are not indigenous or endemic to the area and cause environmental or economic harm.

Person-day

The number of people who worked on a project times the number of days each person worked. Used to estimate required level of work when planning.

NBAL

Natural Biological Area. The term used to describe a management unit referred to in the Working for Water program.

1. INTRODUCTION

Name of Applicant: Orren Capital (Pty) Ltd

Farm Name: Kleinfontein (OP04467) 367 RD
Minor Road 4553

Coordinates: 34°4'39.9" S; 20°12'10.5" E

Magisterial District: District of Swellendam, Western Cape Region
Cape Winelands

Date: August 2023

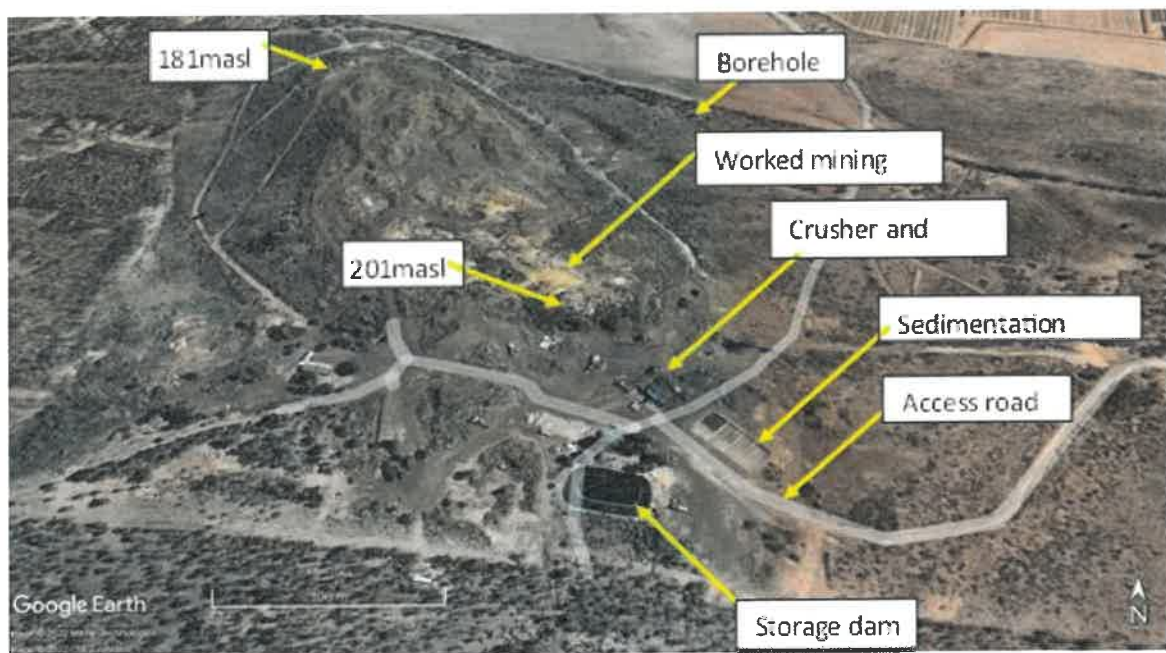


Figure 1: Map of Kleinfontein farm as used when the old mine was operational



Figure 2: The existing mining rubble as inherited from the previous owner of the Kleinfontein mine.

1.1 Control Plan purpose:

The purpose of this invasive alien plant species plan is to effectively manage and control the spread of non-native plant species that have become invasive and pose a threat to the native ecosystems, biodiversity, economy, and human well-being. Invasive alien plant species are plants that are introduced to an area outside their natural range and quickly establish themselves, outcompeting native plants and disrupting the local ecosystem's balance.

A purpose reason is to be compliant with the National Environmental Management Biodiversity Act 2004 (Act 10, of 2004) as amended, by bringing all invasive species on Kleinfontein Mine (KM) under control by 2027. Additional objectives are to reduce fire hazard, increase water flow into tributaries, to decrease the liability of invasive species on the farm's value and to maintain all areas of high biodiversity. The plan's key objectives will include:

Biodiversity Conservation

Invasive alien plants can outcompete native species for resources such as water, nutrients, and space, leading to a loss of biodiversity. The plan aims to protect and restore native flora and fauna by reducing the dominance of invasive plants.

Water Resource Management

Many invasive plants consume large amounts of water, which can have significant negative impacts on water availability for both ecosystems and human use. Managing these plants helps to improve water availability for essential needs.

Fire Risk Reduction

Some invasive plant species are highly flammable and can contribute to an increased risk of wildfires. Managing these plants can help mitigate fire risks, protecting both natural areas and human communities.

Economic Impacts

Invasive plants can have economic implications by reducing agricultural productivity, degrading grazing lands, and increasing the costs of water treatment and fire management. Controlling these plants can help alleviate these negative economic effects.

Aesthetical Impacts

Invasive plant infestations can affect the aesthetic appeal of natural landscapes and impact recreational activities. Managing invasives can enhance the quality of outdoor experiences for staff, locals and visitors.

Human Health:

Some invasive plants can have allergenic or toxic properties that can pose risks to human health. Managing these plants can help reduce such health risks.

Collaboration and Partnerships

An invasive alien plant species plan often involves collaboration between various stakeholders, including government agencies, non-governmental organizations, neighboring landowners, and local communities. The plan can facilitate cooperation and coordination in managing invasives.

Research and Monitoring

The plan may include provisions for ongoing research, monitoring, and assessment of the impact of invasive plants on the environment. This information helps adjust strategies and tactics for effective management.

The Western Cape Province of South Africa is known for its unique and diverse ecosystems, and invasive alien plants pose a significant threat to these ecosystems. Therefore, having a comprehensive plan in place to manage these species is crucial for maintaining the health and integrity of the region's natural environment.

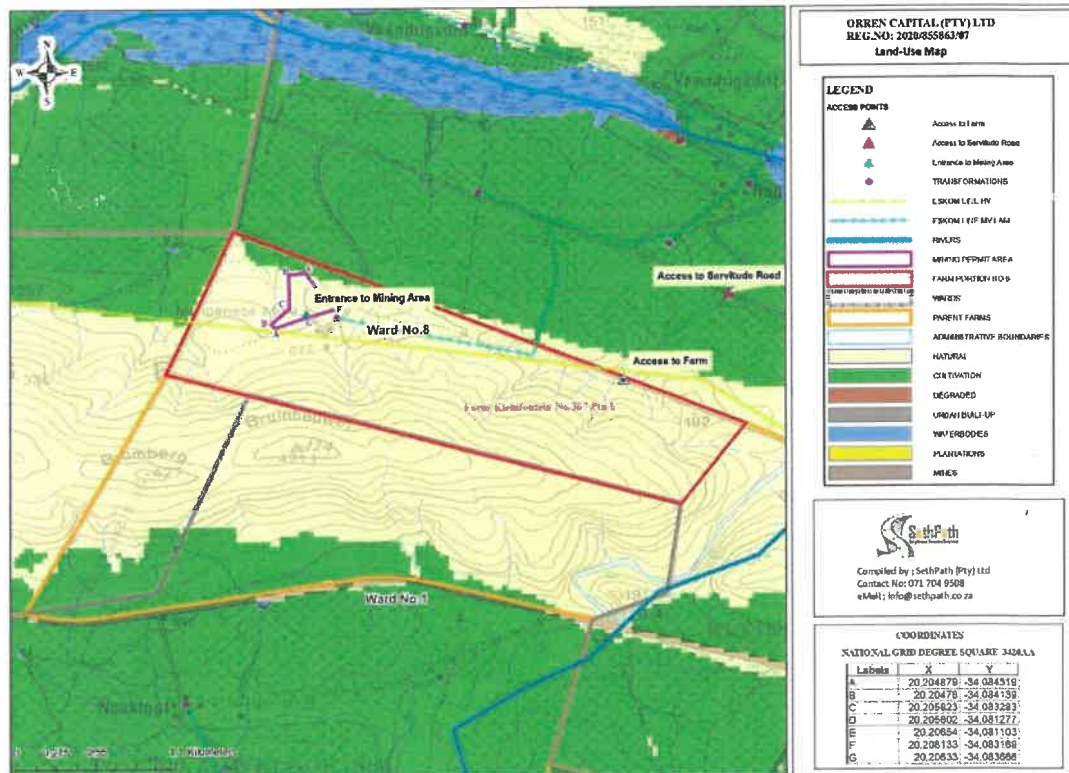


Figure 3: Map of Kleinfontein farm, Swellendam

The site is considered to be part of the Southwest Fynbos bioregion and forms part of the Fynbos biome, located within what is now known as the Core Region of the Greater Cape Floristic Region (GCFR; Manning & Goldblatt 2012). The GCFR is one of only six Floristic Regions in the world, and is the only one largely confined to a single country (the Succulent Karoo component extends into southern Namibia). It is also by far the smallest floristic region, occupying only 0.2% of the world's land surface, and supporting about 11500 plant species, over half of all the plant species in South Africa (on 12% of the land area). At least 70% of all the species in the Cape region do not occur elsewhere, and many have very small home ranges (these are known as narrow endemics). Many of the lowland habitats are under pressure from agriculture, urbanisation and alien plants, and thus many of the range restricted species are also under severe threat of extinction, as habitat is reduced to extremely small fragments.

The mine is situated in a rocky outcrop in a picturesque area next to the Vaandrighs Drift minor road. From a botanical and geological perspective, the area is characterized by diverse landscapes and a rich variety of plant species.

Cape Fold Mountains: Swellendam is situated within the Cape Fold Belt, a geological formation known for its complex folding and faulting. This mountainous terrain has resulted from millions of years of tectonic activity, and it gives rise to the region's diverse topography.

The geological formations in this area primarily consist of sedimentary rocks, including sandstone and shale. These rocks are notable for their varied colors and patterns, which contribute to the region's scenic beauty.

In addition to the predominant fynbos, you can also find pockets of renosterveld in the Swellendam area. Renosterveld is another unique vegetation type in the Cape Floristic Region, with a distinct set of plant species.

In summary, the area around the mine offers a fascinating blend of geological formations, including the Cape Fold Mountains and sedimentary rocks, and a remarkable botanical diversity, with the fynbos biome and its unique plant species taking center stage. This combination of geological and botanical features makes the region a haven for nature enthusiasts, botanists, and researchers interested in the unique ecosystems of the Cape Floristic Region

Only local indigenous species should be used for rehabilitation of disturbed areas of natural vegetation. Because many of the species in the area are not commercially available it would be better to suggest that whoever is responsible for the rehabilitation should approach the ecologist with a list of potential species that they can source, in order to check that they are suitable for the site.

2. LISTED SPECIES PRESENT ON THE PROPERTY

The Invasive alien plant species (IAP) detected on the property during the survey are listed in Table 1.

Table 1: NEMBA listed (Oct 2014) IAP present on the property

SPECIES	COMMON NAME	NEMBA CATEGORY
<i>Acacia longifolia</i>	Long-leaved wattle	1b
<i>Acacia mearnsii</i>	Black wattle	2
<i>Acacia saligna</i>	Port Jackson	1b
<i>Casuarina cunninghamiana</i>	Beefwood	1b
<i>Eucalyptus camaldulensis</i>	River red gum	1b
<i>Eucalyptus glabra</i>		1b
<i>Eucalyptus grandis</i>	Saligna gum	1b
<i>Pinus radiata</i>	Radiata pine/Monterrey pine	1b (outside forestry)
<i>Ricinus communis</i>	Castor oil plant	2

Categories

- 1a: Must be combatted and eradicated. Any form of trade or planting is strictly prohibited.
- 1b: Must be controlled and wherever possible, removed and destroyed. Any form of trade or planting is strictly prohibited.
- 2: A permit is required to carry out a restricted activity (e.g. forestry)
- 3: May remain in prescribed areas or provinces. Further planting, propagation or trade is prohibited.

3. EXTENT AND DISTRIBUTION OF THE INVASIVE ALIEN SPECIES ON THE PROPERTY

3.1 Biodiversity areas

3.1.1 Biodiversity Management Units

Table 2: Total IAS infestation per management unit

MANAGEMENT UNIT	Ha	EXTENT OF OVERALL INVASION (%)	COMMENT	PRIORITY
Surveyed Jul 2023 – 5 ha		6%	The consist of existing dumped spoil by previous owners, pristine areas as well as construction area as inherited from previous owners. Total area 5ha.	Med
MBAL001	2ha	5%	Office and working area. Medium fire risk. Adjacent to dense stands and forestry (adjacent property). Some aliens on verge of area. Few loose standing trees.	Med/Low
MBAL002	3ha	24%	Some old forestry, adjacent to current plantation. Patches of pines. No Red-listed species, mostly pioneer fynbos, with existing spoil heaps and some riparian vegetation far away next ephemeral stream.	Med

3.1.1.1 Budgeting

Table 3: Sample of contractor's plan.

Management unit	ha	YEAR 1				YEAR 2			
		PD planned	PD rate	Control cost	R/Ha	PD Planned	PD rate	Control cost	R/Ha
MBAL1									
MBAL2									

4. OBJECTIVES AND ACTIONS

OBJECTIVE 1: Control invasive plant infestation

To bring the invasive plant infestation under control by 2027

Table 4: Desired state for invasive plants on the property

CATEGORY	DESIRED STATE – BY 2027
Category 1 b trees	All mature trees are removed; follow- up control program in place. All the management units are in maintenance. Overall infestation does not exceed 10% of the property. (These will include seedlings and re-sprouting trees, mainly gums and poplars. Acacia species will be under control with the correct control methods and pines and hakea will be under control as they do not re-sprout following correct clearing methods.)
Category 1b herbaceous species	Less than 1%
Category 1b annual species	Less than 1%
Category 2 species	Permit application will be submitted for all Category 2 species on the property (IF NEEDED for windbreaks, dust etc.).

OBJECTIVE 2: Prevention

To put measures in place to prevent the introduction of new NEMBA listed IAS onto the property, and from spreading from the property to neighboring properties.

Actions:

- No listed invasive and alien plant species will be planted
- Areas bordering onto neighboring land will be prioritized for control to prevent existing invasive plants from spreading beyond the boundaries of the property
- No listed invader animal species will be introduced on the property
- These prevention measures will be communicated to all users of the property (where applicable)

OBJECTIVE 3: Early Detection Rapid Response (EDRR) and eradication

To detect emerging IAS through regular surveys and remove them before they become established, produce seeds or offspring and start spreading.

Actions:

- Regularly survey the property to detect any new or emerging listed invasive plant species.
- Report category 1a species immediately to the Department of Environmental Affairs/Provincial Conservation Agency/Local Municipality/South African National Biodiversity Institute (SANBI) EDRR program and ask for assistance with the control of the species.
- Do not allow emerging or new species to produce seeds or off-spring, or start growing vegetatively, act immediately by removing them.
- Update the species list by including these species and indicate where on the property they were located.
- Increase surveillance in the areas after the species were controlled to quickly remove re-sprouting plants or seedlings.

OBJECTIVE 4: Monitoring

The following monitoring protocol is to be undertaken by the Biodiversity Manager after all clearing.

Table 5: The monitor protocol to be undertaken by the Biodiversity Manager after clearing.

WHAT	FREQUENCY	HOW	RESPONSE
How effective are the control methods	4-6 months after every operation	Survey the cleared areas and look for regrowth. Before and after pictures are very effective. Look out for non-target effects of herbicide application.	If the survey reveals that the control methods are effective, e.g., low levels of re-sprouting, continue following the herbicide mixtures and control methods. If non-target plants are dying off where herbicides were applied, ensure appropriate training for herbicide applicators, demonstrate the off-target effects to herbicide applicators to ensure they are using the correct methods and herbicides. (Gums are difficult to control and re-sprouting often occurs, therefore shorter follow-up interventions may be required). If the results show that the control methods are not effective, adapt by e.g., cutting lower above ground or changing herbicides or timing of herbicide application.
Do the infestation levels decrease	Annually	Survey the cleared areas and record species, densities and size. Before and after pictures are very effective.	If the infestation levels are not decreasing, reconsider clearing intervals and look at clearing methods. If infestation levels are decreasing - continue clearing, you are doing well!
How much herbicides were used	During every operation (If WFW provides the herbicides, a landowner agreement will be signed and the records are to be	Keep track of cost and ensure no wastage. Record herbicide usage – see Annexure 4	Track usage over time, it will reveal a certain trend in quantities for different infestation levels. Less herbicides should be used when the infestation levels are lower. Record herbicide cost.

	submitted to WFW)		
Does the indigenous vegetation recover in the cleared areas?	Annually	Survey the cleared areas and look out for indigenous species variety and presence. Before and after pictures are very effective.	If it does – you are doing well, if not, look at clearing methods, clearing intervals or consult an expert
How many jobs were created	After every operation	Timesheets	Job creation figures are useful when asking for landowner assistance from WFW or to demonstrate contributions to jobs and socio-economic conditions
How many person days (PD) were spent per operations	After every operation	Timesheets	Keep track of cost and assist with planning and budgeting. Determine cost per person day (PD)



Figure 4: Hopper and conveyer of old mining activities on Kleinfontein farm

5. MANAGEMENT UNIT DESCRIPTIONS, SPECIES PRESENT AND EXTENT

Table 6: MBAL001 – Surveyed 2023

Species	Seedling	Young	Mature	Extent
		DBH < 1m	DBH > 1m	
		Diameter < 60cm	Diameter > 60cm	
Eucalyptus	X	X		10%
Black Wattle	X	X	X	5%
Port Jackson	X	X	X	3%
Long-leaved Wattle		X		2%
Pines	X	X	X	1%
Overall density				5%

This MBAL is 2 Ha in size and is the main mining office and construction area. It is sparsely invaded with primarily Eucalyptus which are mainly remnants of old activities on the site and planted for shade etc. Patchy fynbos present. Numerous seasonal streams crisscrossing the area; potentially a seep area if restored. Fire risk is medium to low. Can be easily cleared with a follow-up program in place.

Table 7: MBAL002 – Surveyed 2023.

Species	Seedling	Young	Mature	Resprouting after fire	Extent
		DBH < 1m	DBH > 1m		
		Diameter < 60cm	Diameter > 60cm		
Eucalyptus	X	X		X	10%
Black Wattle	X	X		X	5%
Port Jackson	X				2%
Long-leaved Wattle	X	X			5%
Pines	X	X	X		4%
Overall density					22%

This MBAL is 3 Ha in size and is adjacent to some old forestry and current plantations. Patches of pines and wattles exist. No Red-listed species, mostly pioneer fynbos, with existing spoil heaps and some riparian vegetation far away next to ephemeral stream. It is sparsely invaded with primarily Eucalyptus which are mainly remnants of old activities on the site and planted for shade etc. Patchy fynbos present. Fire risk is medium. Can be easily cleared with a follow-up program in place.

6. WETLAND AND RIPARIAN DELINEATION PROTOCOL WITHIN FORESTRY AREAS

NO SPECIAL MANAGEMENT ZONES FOR WETLAND & RIPARIAN HABITATS FOUND.

Definitions

Wetland: Land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.

Riparian zone: The physical structure and associated vegetation of the areas associated with a watercourse which are commonly characterized by alluvial soils, and which are flooded to an extent with a frequency sufficient to support vegetation of species with a composition and physical structure distinct from those of adjacent land areas.

Buffer: A strip of land surrounding a wetland or riparian area in which activities are controlled or restricted, in order to reduce the impact of adjacent land uses on the wetland or riparian area.

Watercourse: A river or spring or a natural channel in which water flows regularly or intermittently or a wetland, lake or dam into which, or from which, water flows.

PROTOCOL

The following points are taken into account when delineating the wetland and riparian areas:

- Vegetation
- Topography associated with a watercourse
- Alluvial soils and deposited material

The delineated wetland or riparian habitat areas require a buffer strip alongside them in order to adequately protect the habitat and the water resource. Within the buffer strip activities are controlled and restricted, with access only permitted for clearing of the buffer and for fire protection. Wherever possible buffer strips should tie in with adjacent roads for ease of access. The appropriate buffer width is 20 meters/the drop height of one pine tree.

In terms of where the buffer begins, delineation will depend on:

1. The class allocated to the watercourse (Figure 5):
 - A Section: Ephemeral – Flows only after precipitation, with runoff from rainfall being main source (no base flow)
 - B Section: Seasonal – Flows during rainy season (seasonal base flow)
 - C Section: Perennial – Flows year-round (constant base flow)
2. The sensitivity of the wetland/riparian habitat
3. Where the outer edge of the temporary zone of the wetland is (this the outer zone of the wetland which is seasonally wet), see Figure 6.
4. Where the species composition of the riparian zone distinctly changes from the surrounding terrestrial vegetation

Considering these points, each watercourse with its associated habitat must be considered on a case-by-case basis by both the forestry and biodiversity managers. Potential increases or decreases of the buffer strip width may occur upon ground-truthing.

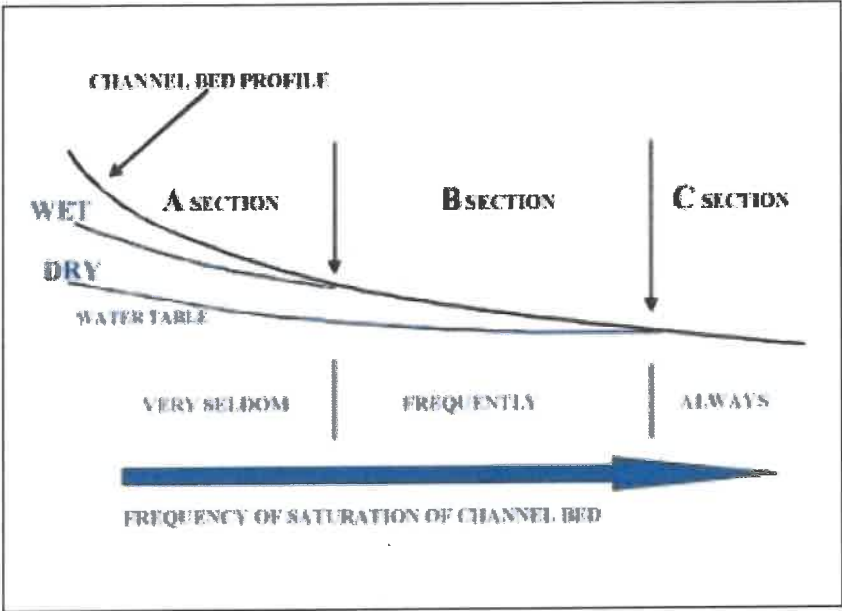


Figure 5: Classification of river channels

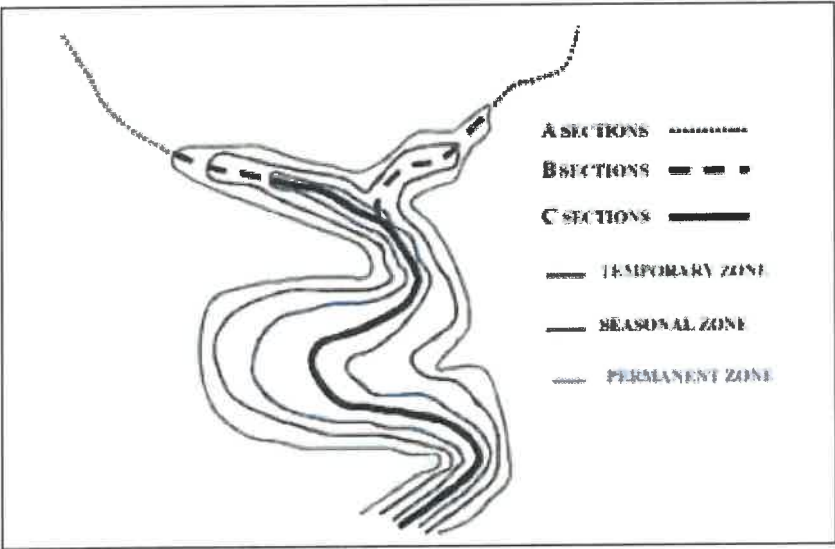


Figure 6: Wetland zones and river sections

7. COSTING

Latest costing norms per plant type used by the Working for Water Program. Costing is based on R317.34/person day (PPE inclusive).

Table 8: Latest costing norms per plant type used by the Working for Water Program.

Growth form	Size/age	Method	Landscape workload (persondays/condensed ha)	Riparian workload (persondays/condensed ha)	Landscape initial cost/condensed ha	Riparian initial cost/condensed ha
Seedling	All	Foliar spray	5.10	5.10	R 1 618	R 1 618
	All	Handpull	6.38	6.38	R 2 025	R 2 025
Non-sprouting tree	Young	Lopping	10.37	15.56	R 3 291	R 4 938
	Adult	Frilling	13.69	13.69	R 4 344	R 4 344
	Adult	Felling		25.50		R 8 092
Sprouting tree	Young	Lopping	15.00	22.50	R 4 760	R 7 140
	Adult	Frilling	19.84	19.84	R 6 296	R 6 296
	Adult	Cut stump		36.98		R 11 735
Climber	Young	Foliar spray	6.38	6.38	R 2 025	R 2 025
	Adult	Cut & spray	10.37	15.56	R 3 291	R 4 938
Herbaceous/shrub	Adult	Cut & spray	6.38	15.56	R 2 025	R 4 938
Succulent	Young	Foliar spray/ Stem injection	6.38	6.38	R 2 025	R 2 025
	Adult	Foliar spray	10.37	15.56	R 3 291	R 4 938
Grass/reed	Young	Cut & spray	5.10	5.10	R 1 618	R 1 618
	Adult		10.37	10.37	R 3 291	R 3 291

8. CONTROL METHODS

Following best practice described in this document, ensures compliance with NEMBA Section 75 (1) (2) & (3) in that the means and methods of control are appropriate to the species and environment and are implemented in such a way that it minimizes the risk to biodiversity and the environment.

- Control actions must be taken with caution to cause the least possible harm to biodiversity and the environment (take care not to remove native species or damage them for example by using the incorrect herbicide application; or bulldozing).
- Offspring, propagating material and regrowth should be tackled to prevent species from producing offspring, forming seed, regenerate or re-establish
- Implement measures to prevent the starting of wildfires, including spreading to neighboring land and to be ready and able to combat fires on the farm should they occur
- Mechanical and hand tools must be best suited to the work and the size of plants being cleared and in a good working condition

Initial clearing

- Equipment required: Chainsaws, loppers, bow saw, 2l handheld herbicide cans.
- Pines and hakea: fell and cut, no herbicides required
- Port Jackson & longleaf wattle: fell and cut, apply herbicide to stumps within 1 minute after cutting or felling. Apply herbicides at applicable rates

Follow up clearing

- Conduct follow up within six months after initial clearing, before plants have the opportunity to produce seeds.
- Pines and hakea: cut, no herbicides required
- Port Jackson & longleaf wattle: cut, apply herbicide to stumps within 1 minute after cutting or felling. Apply herbicides at applicable rates

Mechanical & manual control methods

- Fell trees with a stem diameter of > 200mm with a chainsaw
- Cut trees with a stem diameter of < 200mm with a bow saw or silky saw
- Cut trees and plants with a stem diameter of < 100mm with a lopper
- Cut as low as possible above ground level, ideally 10 cm or below the last growth point.

- Ensure even cuts
- Seedlings can be hand-pulled in sandy soil, important to uproot the entire plant, breaking off will cause it to regrow.

Herbicide application

Ensure herbicide applicators are appropriately skilled.

- Wear correct personal protective equipment (PPE)
- Only apply registered herbicides at prescribed rates, follow label instructions

Cut stump treatment

Use spray can (2l spray maker) for smaller plants and knapsack for larger trees and apply herbicides to the stump immediately after cutting or felling.

For larger stumps, only apply herbicides to the outer 50mm (cambium).

Minimize collateral damage by applying herbicides using the correct nozzle and pressure.

Foliage treatment

Suitable for plants up to 1m tall. Use a knapsack sprayer with a pressure regulator to evenly apply herbicides at the required mixture.

Precautions during herbicide application

The risk of herbicide drift exists especially in the vicinity of vineyards/orchards or crops. Apply only under suitable weather conditions, at appropriate rates by appropriately qualified herbicide applicators.

Treatment is least effective in very hot weather or when the plants are water stressed.

Do not apply herbicides during windy conditions to prevent herbicide drift and damaging non-target plants.

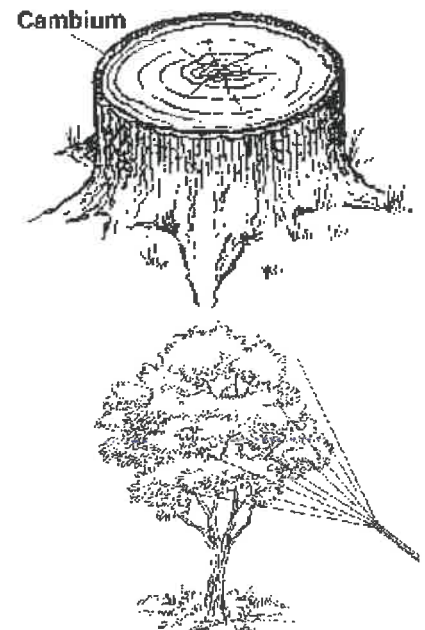


Figure 7: Represents the cut stump treatment and foliage treatment.

Table 9: Complete herbicide control sheet to maintain usage records

Herbicide Control Sheet							
Management Unit:						Hectares	
Day	Herbicide (name)	Herbicide (name)	Herbicide (name)	Herbicide (name)	Herbicide (name)	Actipron	Dye
1							
2							
3							

9. HERBICIDE USE

The latest Working for water species herbicide list v 4.0 is attached.

HERBICIDE STORAGE

All storage facilities shall comply with the requirements of AVCASA, summarized as follows:

- A store should preferably be a separate building and should not be sited near a dwelling house, livestock buildings or where fodder, fuel or other flammable materials are stored. A minimum of five meters between the store and the other buildings is recommended. If part of a complex, the store must be totally sealed off from the rest of the complex, i.e., no free movement of air between the storage area and the rest of the complex.
- The location of the store must consider the possible pollution risk from spilt chemicals. The store should be away from rivers, dams, boreholes and areas likely to be flooded. The store should be situated where it can be supervised.
- Equip the room with a table of suitable strength and height to facilitate reading of labels, decanting and measuring out of herbicides.
- Measuring jugs, funnels, pumps and buckets must be kept on hand and kept specifically for the purpose of measuring out herbicides. Do not use household items for this purpose.
- For the sake of good housekeeping, have on hand a broom, spade and a supply of dry fine soil as absorbent material to contain and absorb spills.

HANDLING HERBICIDE

- The handling of herbicide concentrates requires strict precautions and personnel handling product concentrates must be fully aware of precautions to be observed.

- Suitable protective clothing must be available and use thereof is compulsory.
- Chemical resistant plastic aprons, gloves and eye protection must be worn when handling concentrates.
- Adequate hygiene aids such as plentiful water, soap, towels and eyewash must be readily available.
- Suitable absorbent material such as fine dry soil and cleaning equipment must be available to handle accidental spillage.
- In the case of spillage, the spill must be contained immediately and cleaned up with absorbent material such as fine dry soil. The contaminated material should then be disposed of by burying in a safe place.
- Concentrates should if possible be decanted in a safe, suitable place and not in the field. Such a handling and mixing area should have a hard-impermeable floor, be bunded and have an adequate sump to accommodate run-off from washing, flooding or fire containment. A 1m³ sump /10m² floor space is recommended.
- Concentrates and mixtures should never be decanted into or be mixed in drinking bottles or other food containers.
- All containers into which herbicides or adjuvants are decanted must be clearly marked and a copy of the original label secured to the container.
- Suitable equipment must be available to prepare spray mixtures. These include plastic measuring cylinders and beakers, mixing containers (buckets) and funnels.

HERBICIDE USE IN THE FIELD

- Spray mixtures must be kept in leak-proof, non-spill containers. The containers should be kept away from personal belongings, foodstuff, drinking water and eating and living areas.
- Containers should stand on suitable absorbent material, e.g. a large piece of thick hessian sack that will absorb minor drips, out of direct sunlight in a cool place.
- Containers must be kept at least 20m away from water bodies.
- The area where the containers are kept in the field must be demarcated with danger tape.
- Filling sites should be selected to prevent damage to desirable vegetation and to enable spillage to be cleaned up and disposed of.
- Spray mixture containers must be clearly labelled and only reused for the specific herbicide.
- Application equipment and containers should not be cleaned on site but at a suitable designated area at the store.
- Suitable protective clothing, overalls, rubber boots, gloves and if necessary, eye protection must be worn by operators when handling and applying herbicides.



Figure 8: Plantations and orchards downstream of the mine

TRANSPORTATION OF HERBICIDE

- Herbicides and application equipment must be carried on a separate vehicle or in a part of the vehicle isolated from people, food and clothing.
- Vehicles should carry absorbent material to absorb any spillage.
- Herbicides and equipment must be secured to prevent spillage and damage.
- Product, spray mixtures and equipment must not be left unattended where there is a danger of theft or abuse.
- Product should not be left uncovered in the sun.

DISPOSAL OF CONTAINERS

- A designated officer should be responsible to ensure that herbicide containers are correctly and safely disposed of, according to AVCASA guidelines.
- Empty containers must be destroyed after use and not be used for any other purpose. Under no circumstances may containers be taken home for personal use.
- Empty containers should be returned to the store for safe keeping and disposal.
- Where arrangements have been made containers should be returned to the supplier.
- Containers that must be destroyed should be triple rinsed, punctured, flattened and, if suitable, burned.
- Only sufficient spray mixture that can be used in a day should be prepared. Left- over material should be returned to the depot for safe storage and re-use. Spray mixture should only be disposed of in a suitable site.
- Certain spray mixtures should not be left standing overnight and should be safely disposed of. Consult the product label.

- If mixtures can be left overnight with no adverse effects, they should be kept reducing costs and pollution from herbicide and wash water.

SAFETY

- Due regard must be paid always to the health and safety of the public.
- Public should be kept out of operational areas where any hazards exist. Warning notices should be displayed to this effect where necessary.
- Herbicides must only be applied strictly according to label recommendations.
- Product and spray mixtures should be stored so that they are inaccessible to the public.
- Treatment of areas within 50 m of habitations and public areas (e.g. parks) should be avoided or only carried out in consultation with the parties effected.
- Public should be informed of control operations in their area by means of verbal communication, notices, pamphlets, the press etc.

ENVIRONMENTAL SAFETY

- Most alien vegetation control operations are carried out in riparian situations which are regarded as environmentally sensitive. To minimize the impact of the operation on the natural environment the following must be observed.
- Area contamination must be minimized by careful accurate application with a minimum amount of herbicide to achieve good control.
- All care must be taken to prevent contamination of any water bodies. This includes due care in storage, application, cleaning equipment and disposal of containers, product and spray mixtures.
- Equipment should be washed where there is no danger of contaminating water sources and washings carefully disposed of in a suitable site.
- To avoid damage to indigenous or other desirable vegetation product should be selected that will have the least effect on non-target vegetation.
- Coarse droplet nozzles should be fitted to avoid drift onto neighboring vegetation, e.g., TG-1 or equivalent.

RATES OF APPLICATION – GENERAL RULES

- Products shall be mixed and applied at rates recommended on the label. This shall not be deviated from without consultation with Working for Water Technical Advisor and suppliers.
- Applications should be checked regularly to ensure that they comply with recommendations

PRECAUTIONS

- Appropriate protective clothing must be changed and washed regularly and should be removed immediately if grossly contaminated.
- Spillage must be attended to immediately and appropriately disposed of.
- Application teams must be trained to avoid damage to non-target species.
- Contamination of all water bodies must be strictly avoided.
- Hygiene aids - clean water, soap, towels and eyewash must always be available to spray operators.

ADJUVANTS

- Where recommended wetting and spreading agents should be added to spray mixtures. Wetters should always be mixed in accordance with label recommendations.
- Dye must be added to all applications where the product has no built-in dye to ensure that no target species are missed, and plants are correctly treated.
- In areas where alkaline water is used for spraying the use of a buffering agent may be necessary. Consult the product label. Buffers should always be added to the water before the herbicide.
- In sensitive areas where drift must be controlled, the use of drift control agents may be necessary. Seek expert advice on the use of these agents.

WATER SOURCES

- Only clean water may be used for spray mixtures.
- Where particulate matter occurs in water, e.g., water drawn from rivers, the water must be filtered to avoid nozzle blockages.
- Funnels with filters should be used for filling or filters should be fitted in the application equipment.
- Where large volumes of water are transported, tankers or tanks should be fitted with buffer plates particularly where operating in rough terrain.
- The product label should be consulted regarding the quality of water suitable for the specific herbicide.

WEATHER CONDITIONS

- Applications should not be carried out under unfavorable weather conditions that could affect the control obtained or endanger nearby desirable vegetation, water bodies or personnel.

- Label recommendations regarding suitable application conditions must be followed.
- The following conditions must be taken into consideration, depending on the method of application:
 - Application to wet plants.
 - Threatening rain.
 - Wind conditions.
 - Hot, dry conditions
 - Conditions of target plants

MIXING HERBICIDES

- Mixing must take place according to label instructions.
- Suitable protective clothing must be worn when handling concentrates.
- Liquid concentrates should be added to the half full tank which is then topped up.
- Adjuvants should be added to the tank as per the label instruction prior to the addition of the herbicide when buffering and afterwards for wetters and dyes.
- Do not mix concentrates together before adding them to the tank. Consult product labels.
- Proper mixing in knapsacks and hand-held applicators is difficult and spray mixtures should be mixed in bulk containers or if necessary (e.g., wettable powders) buckets before pouring into the knapsacks or hand-held applicators.
- Spray mixtures should be agitated continuously if recommended. This is essential after they have been standing for a while.

CALIBRATION

- Application equipment must be correctly calibrated to obtain optimum results and prevent wastage through over-application.
- Calibration should be carried out in the area to be treated.
- Calibration should be checked frequently during application. The following should be checked:
 - Correct spray pressure.
 - Correct nozzle size and spray pattern.
 - Correct nozzle output.
 - Volume of application over a specific area.

10. RESTORATION

The following are some basic notes on restoration. When planning restoration activities on Kleinfontein Mine, consult comprehensive guidelines.

The primary goal of restoration following alien plant invasion is to re-establish a structurally representative stand of indigenous vegetation that fulfills the major ecosystem functions. Alien plant eradication projects are an integral part of restoration and *vice versa*.

Provided that no other disturbance has affected the area, light to moderate alien plant stands can be cleared without negatively affecting indigenous vegetation recovery. However, when clearing operations result in large, exposed areas, restoration should be considered.

GENERAL PRINCIPLES

1. Aim to conserve what remains, i.e., minimise the loss of indigenous seed banks and soil. (In this way restoration costs may be kept to a minimum.)
2. Prioritize areas requiring post-clearance restoration actions, as resources are usually limited. Areas prone to further degradation should be prioritized first.
3. Keep records of all invaded sites being restored. Records should include alien vegetation clearance methods and dates, restoration actions, and results of alien and indigenous vegetation monitoring.
4. Any restoration program should go through the following processes: site assessment, planning, operational phase and monitoring.
5. During site assessment, the main characteristics, which should be assessed, include:
6. Habitat – soils, local climate, sensitivity.
7. Fauna & Flora in terms of special indicators – rare species and keystone species
8. Do not use commercially available seed such seed may contain other undesirable seed, which may compete with the – past & present uses survival rate of fynbos seedlings.
9. Flower heads and mulch can be collected from surrounding areas and spread over the area. As a general guideline, at least one flower head (with seeds!) per square meter is required with mixed mulch spread around thinly.
10. Avoid using material from other areas as mixing of varieties can occur.
11. If it is less important to establish indigenous species, grasses such as *Eragrostis curvula* establish quickly and easily. There are other species which will also work well, but aggressive invaders i.e., kikuyu should not be used in natural areas.
12. A combination of grasses followed by a light burn after a year, and then the spreading of fynbos mulch and flower heads could also be considered. Benefits of restoration of the riparian zone:
13. Control of erosion and stabilization of riverbanks.

14. The buffer zone acts as a filter for sediments and pollutants such as nutrients, pesticides and waste from adjacent land, before they enter the watercourse.
15. Riparian land provides habitats for a wide variety of native plants and animals. It also provides a refuge for animals and birds during drought or other environmental stresses.
16. Many of the animals and birds living in these zones control pests on farms.