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**APPLICATION FOR SUSPENSION IN TERMS OF SECTION 96(2) OF THE
MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002
("MPRDA")**

CENTRE FOR ENVIRONMENTAL RIGHTS NPC	Applicant
IN RE:	
MINISTER OF MINERAL RESOURCES AND ENERGY	Decision-Maker
DIRECTOR-GENERAL: DEPARTMENT OF MINERAL RESOURCES AND ENERGY	Decision-Maker
MINERAL SANDS RESOURCES (PTY) LTD	Right Holder
TORMIN MINERAL SANDS (PTY) LTD	Right Holder

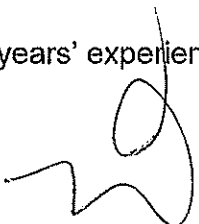

EXPERT AFFIDAVIT OF SUSAN BROWNLIE

I, the undersigned

SUSAN FRANCES BROWNLIE

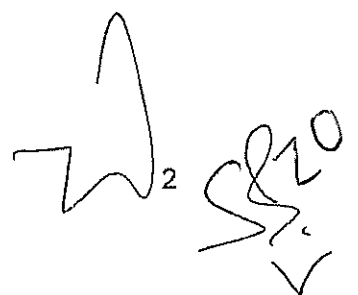
state under oath that:

- 1 I am a member of deVilliers Brownlie Associates CC at 21 Menin Avenue, Claremont, Cape Town. I have been a member of deVilliers Brownlie Associates for 28 years.
- 2 I am an environmental consultant and environmental assessment practitioner with the following qualifications: a Bachelor of Science (with Honours) in Zoology and a Master of Science in Environmental Studies (with distinction), both obtained at the University of Cape Town. I have more than 35 years' experience

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in my field of specialisation and am a Professional Natural Scientist (Reg. No. 400246/05) registered with the South African Council for Natural Scientific Professions (SACNASP). I am also registered as an Environmental Assessment Practitioner with the Environmental Assessment Practitioners' Association of South Africa, EAPASA (No. 2016/13).

- 3 I am recognised internationally for my work on biodiversity in impact assessment, and have co-chaired the International Association for Impact Assessment's Biodiversity and Ecology Section. In addition, I was a member of the Advisory Group for the international Business and Biodiversity Offsets Programme.
- 4 I have completed the following training courses: *Changing Concepts in Ecology: Tools for the Environmental Practitioner* (Southern African Institute for Ecologists and Environmental Scientists) and *Strategic Environmental Assessment for Developing Countries* (International Association for Impact Assessment).
- 5 My key areas of expertise include consideration of the natural environment in impact assessment, as well as people's dependence on that natural environment; the review of environmental assessment at strategic and project levels; the conservation of biodiversity and sustainable use of important ecosystem services; and the integration of biodiversity considerations into spatial development planning.
- 6 The facts set out in this affidavit fall within my personal knowledge and belief, except where the context indicates otherwise, and are true and correct.

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Introduction

- 7 The First Respondent, Mineral Sands Resources (Pty) Ltd ("*MSR*") has recently commenced mining pursuant to an Integrated Environmental Authorisation (IEA) granted by the Department of Mineral Resources ("*the DMR*") and an amendment of MSR's mining right in terms of section 102 of the Mineral and Petroleum Resources Development Act, 28 of 2002 ("*the MPRDA*") which allows it to significantly expand its Tormin Mine operations on the West Coast,
- 8 The expansion entails extending the mine by an additional 188.7 hectares to mine an additional strip of coastline north of the current operations (a further ten beaches), to conduct inland "strand line" mining on the Farm Geelwal Karoo 262 and to construct additional processing plants, stockpile areas, industrial yards, parking and laydown areas ("*the section 102 mining extension*").
- 9 The Applicant, the Centre for Environmental Rights ("*the CER*"), has brought an application for judicial review brought in the Western Cape High Court under case number 13446/2020 seeking to set aside (i) the decision of the Third Respondent ("*the Environment Minister*") to dismiss the CER's appeal in terms of section 43(1A) of the National Environment Management Act, 107 of 1998 ("*NEMA*") against the decision of the DMR to grant the Integrated Environmental Authorisation and (ii) the DMR's to grant the Integrated Environmental Authorisation. I assisted the CER with the preparation of that appeal and deposed to an expert affidavit for purposes of the review. In that affidavit, I confirmed that I agreed with the submissions made by the CER in the appeal.
- 10 The CER has also lodged an internal appeal in terms of section 96(1) of the MPRDA against the DMR's decision in terms of the MPRDA to amend MSR's

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mining right in terms of section 102 of the MPRDA and an application in terms of section 96(2) of the MPRDA for the suspension of the decision made in terms of section 102(1) of the MPRDA, pending the outcome of the internal appeal.

11 I have been requested by the CER to furnish it with an expert affidavit for the purposes of the CER's application for suspension of the decision made in terms of section 102(1) of the MPRDA, pending the outcome of the internal appeal.

12 I refer below to the Terrestrial Ecology Specialist Study, Appendix 11F of the Final Environmental Impact Assessment Report and Environmental Management Programme (Final EIAR and EMPr) undertaken as part of the environmental impact assessment process for the section 102 mining extension. I have not annexed a copy of the Terrestrial Ecology Specialist Study, given that it is already annexed to the founding affidavit.

CapeNature's comments in respect of the section 102 mining extension

13 CapeNature is a statutory public entity established by the Western Cape Nature Conservation Board Act, 15 of 1998. Its mandate is to promote and ensure biodiversity conservation within the Western Cape.

14 In the public participation process in respect of the grant of an Integrated Environmental Authorisation to MSR, CapeNature submitted comments dated 14 May 2018 on the revised scoping report and comments dated 16 October 2018 on the draft EIAR. Copies of those comments are annexed marked "SB 1" and "SB 2". On 30 November 2018 CapeNature sent a letter to the DMR referring to the Issues and Responses Summary and the Final EIAR and EMPr and providing further additional comments. A copy of the letter is annexed marked "SB 3" and

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a copy of the pages of the Issues and Responses Summary reflecting CapeNature's comments is annexed marked "SB 4".

- 15 I have read through all of those comments and agree with the comments that were made by CapeNature. I also draw on them below.

Critical Biodiversity Area and important ecological corridor

- 16 Most of the section 102 mining extension area is located within a Critical Biodiversity Area (CBA).

- 17 This is acknowledged in the Terrestrial Ecology Specialist Study which states that: *"The vast majority of the affected area under application falls within CBAs. These areas have been designated CBAs mostly in order to promote coastal resource protection and to maintain ecological processes associated with the coastal strip, especially the ability of fauna restricted to this area to disperse along the coast."*¹

- 18 CBAs are determined through spatial biodiversity planning to meet national biodiversity targets in accordance with South Africa's commitments under the International Convention on Biological Diversity. CBAs are recognised priority areas for conserving South Africa's unique biodiversity, which should be maintained in a good ecological condition.

¹ Terrestrial Ecology Specialist Study (Appendix 11F EIA), p 31.

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- 19 The stretch of coastline and inland area have also been identified as an important ecological corridor. An ecological corridor comprises natural or semi-natural habitat linking priority biodiversity areas, to maintain connectivity between them. By so doing, the health and persistence of species, communities and ecological processes is sustained over time, supporting ecological resilience in response to changing pressures.
- 20 The importance of this ecological corridor is heightened by the notable loss and degradation of this habitat type elsewhere between the Olifants and Sout Rivers.²

Impact on terrestrial vegetation in the CBAs

- 21 As pointed out in CapeNature's comments of 16 October 2018 ("SB 2"), the role and importance of CBAs to meet South Africa's international obligations to the convention on Biological Diversity has not been addressed. As CapeNature further explains, CBAs are the minimum areas required to meet biodiversity targets for ecosystems and species and any loss of intact CBA should be considered to have a high negative impact on at least a regional level.
- 22 The dominant vegetation type in the inland mining area is Namaqualand Strandveld.

² CapeNature comments, Issues and Responses Summary ("SB 4"), p 33.

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23 It has been noted in a recent journal article³ that strip mining for diamonds and heavy minerals is considered the greatest threat to the biodiversity of the Namaqualand region as it is the greatest source of degradation. The article states that "*strip mining is considered one of the most destructive mining methods as it involves the total removal of topsoil and vegetation from large stretches of land*" and that "*this is of particular concern in an environment, such as Namaqualand, where revegetation is considerably restricted by harsh conditions, such as an arid and windy climate, as well as saline and nutrient-poor soils.*"⁴ A copy of the first page of the journal article is annexed marked "SB 5".

24 Namaqualand Strandveld has little formal protection and has steadily declined over the years. An analysis done by CapeNature in 2016 shows that the remaining extent of this vegetation type has decreased by more than 20% over the last decade.⁵ This loss is likely to have increased since that analysis in 2016.

Impact on finer-scale habitats

25 According to Dr Philip Desmet, a botanical specialist⁶, there is a diversity of habitats within Strandveld that are sensitive, and that should be mapped with appropriate buffers and protected as 'no go' areas for mining. They include Strandveld elements of the primary dune along the beach with tall Strandveld behind, north of the cliffs adjacent to farm Geelwal Karoo (the inland section 102

³ Marc J Pauw et al, *Assessing the success of experimental rehabilitation on a coastal mineral sands mine in Namaqualand, South Africa*, African Journal of Range & Forage Science 2018, 35(3&4): 363–373, 14 September 2018.

⁴ p 363.

⁵ CapeNature comments, Issues and Responses Summary ("SB 4"), p 37.

⁶ Dr Philip Desmet, *personal communication*. 19 October 2020.

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mining extension area), as well as rocky headlands between beaches which may support more Succulent Karoo elements: two endemic and threatened succulent plants are known to occur in these rocky habitats (*Tylecodon fragilis* and *Ceropegia occidentalis*).

Reliance on buffer zones to mitigate impacts

- 26 A sufficient buffer zone between the mining activity and the coastal dunes is crucial to ensure that coastal dunes do not collapse or become eroded. Such collapse or erosion would amplify damage to the CBA. The Terrestrial Ecology Specialist Study says that *"Once destabilised, significant areas can become affected as excessive sand movement can smother vegetation and propagate additional sand movement and habitat loss"*.⁷
- 27 The IEA, citing the EMP⁸, stipulates that a buffer zone of 10m *"...must be demarcated from the edge of the cliff and the actual mining area"*⁹ as a 'no go area'.
- 28 The Minister of Environment, in her decision on the appeals submitted against the granting of the IEA for the proposed expansion, directed the DMR to to amend site specific condition 3 of the IEA in line with the specialist recommendation, to read *"The buffer zone of 10m must be demarcated from the toe of the cliff and the actual mining area. The area must be demarcated as a*

⁷ Terrestrial Ecology Specialist Study, p 42.

⁸ Final EIAR and EMP^r, Part B (EMP^r), November 2018, p 223.

⁹ Point 3 of the Integrated Environmental Authorisation.

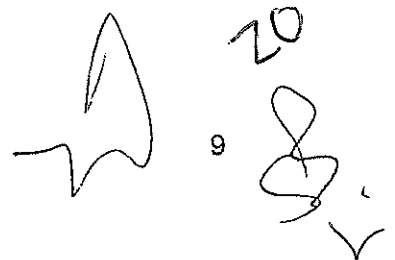
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no-go area for the duration of mining activities. Any mining work including driving within this area is strictly prohibited.” The decision further states that “This amendment is required to align the IEA with the recommendations of the Geotechnical Impact Assessment specialist.”

- 29 Conversely, the Terrestrial Ecology Specialist Study states¹⁰ that “A 10m setback was previously recommended, but this is likely to be insufficient on most of the current beaches”, and recommends that someone with specific experience in beach geomorphology should advise on an appropriate setback. There is no indication in the Final EIAR or EMPr that such expert input was obtained.
- 30 Furthermore, it is to be noted that the Department of Environmental Affairs: Oceans & Coast as well as CapeNature indicated that a 10m buffer is not a sufficient width for the buffer area. DEA: Oceans & Coast recommended that a 20m buffer be considered. This recommendation, as the Minister points out in para 1.13.20 of her appeal decision, was not taken into consideration when the IEA was granted to MSR as the comments were provided to the DMR too late.
- 31 According to the EIAR and EMPr, *“The predicted geotechnical impact is rated as very low during operations as the cliff stability analysis indicates that the infrastructure/ plant expansion area, inland mining and beach mining are unlikely to adversely affect the dunes/ cliffs”*.¹¹ However, from photographs taken during a flyover of the Tormin Mine that the CER undertook on 16 October 2020, and

¹⁰ Terrestrial Ecology Specialist Study pii.

¹¹ Final EIAR and EMPr, Part B (EMPr), November 2018, p223. p xi.



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shared with me on 18 October 2020, there seems to be a correlation between past and recently observed cliff slumping and mining activity.

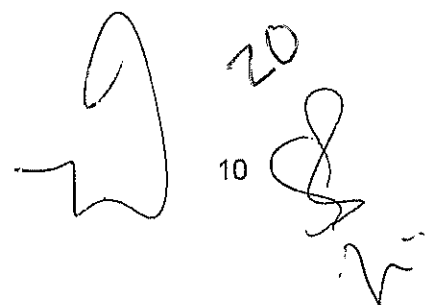
- 32 Mitigation and management of disturbance to the coastal environment and impacts on marine ecology include *"Take weekly photographs of beach mining areas (dunes and cliffs) and cease work if deviations are record (until mitigation measures are implemented)"*.¹² However, there is no clarity on the details of those mitigation measures.

Reliance on the proposed rehabilitation measures to remedy negative impacts

- 33 The Final EIAR and EMPr for the section 102 mining extension relies on the rehabilitation of affected vegetation in mitigation of negative impacts. In my view, this mitigation measure is inadequate.

- 34 In support of her decision to dismiss the CER's appeal against the granting of an Integrated Environmental Authorisation (IEA) for the section 102 mining extension of Tormin Mine, the Environment Minister was satisfied with the proposed rehabilitation measures, noting the DMR's view that the statement in Appendix 6 to the Terrestrial Ecology Specialist Study (described as being a Rehabilitation and Vegetation Plan) that *"A lot of practical lessons have been learnt in this regard at other mines in the area such as Brand-se-Baai and it would be valuable to investigate the approaches that have been successful here first*

¹² Executive Summary of Final EIAR and EMPr, November 2018 p xiv, xv.



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hand.”¹³ “...implies that there is existing knowledge of successful rehabilitation”.

¹⁴ In my view, this implication is incorrect and return of biodiversity to a pre-mining state within the CBA is improbable; impacts are given as ‘long term’, after mitigation; defined as “More than 15 years and irreversible”.¹⁵

35 Namaqualand Strandveld is difficult and extremely slow to rehabilitate unless it is done very shortly after initial disturbance. As CapeNature pointed out in its comments, (“SB 1”, para 3) it would especially not be possible to conduct rehabilitation shortly after disturbance on the areas containing infrastructure as the equipment, processing and storage areas are likely to be in place for several years.

36 Rehabilitation is different from restoration or revegetation. Although some revegetation is likely to occur, it is unlikely that the site will return to its pre-mining biodiversity or be restored (i.e. the overall diversity of the CBAs will be reduced).

37 The Terrestrial Ecology Specialist Study acknowledges that the success of both rehabilitation and restoration is uncertain.

37.1 In relation to rehabilitation, the Terrestrial Ecology Specialist Study states that “Although the rehabilitation of the inland mining area can largely ameliorate the long-term impacts on connectivity, the diversity of the affected area will never be fully restored and

¹³ Terrestrial Ecology Specialist Study, Appendix 6, Tormin Expansion - Rehabilitation and Revegetation Plan, conclusions.

¹⁴ Para 1.11.39 of the Appeal Decision.

¹⁵ Table 39 in Final EIAR and EMP, November 2018.

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regardless of the mitigation and rehabilitation applied, some residual impact will remain in this regard.”¹⁶

37.2 In relation to restoration, the Terrestrial Ecology Specialist Study states that *“The long-term impact of the inland mining would hinge largely on the extent to which vegetation cover within the affected area can be restored to natural levels. This in turn will be dependent largely on topsoil management and the ability of the mine to backfill the mining void to a natural level and top this with fresh topsoil that is still viable in terms of microbes and soil-stored seed, with follow-up active restoration where required. Provided that the cover of the affected area can be restored to near-natural levels, then the long-term impact of the inland mining on ecological processes would be relatively low. However, the degree to which this ideal will be achieved is unknown and can't be assumed.”* (own emphasis)

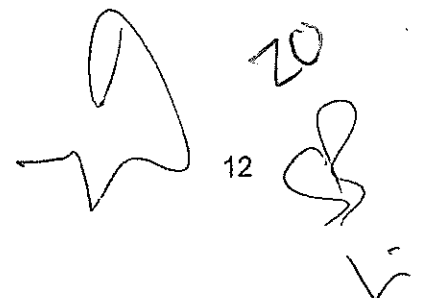
38 According to CapeNature, the success of rehabilitation would be largely dependent on the viability of the topsoil.¹⁷ Limited proof exists of successful rehabilitation (as opposed to revegetation) of this vegetation type in this region. Impact ratings should not be lowered until proof of rehabilitation success is made evident.

39 Notably, in the journal article referred to above, *“Assessing the success of experimental rehabilitation on a coastal mineral sands mine in Namaqualand,*

¹⁶ Terrestrial Ecology Specialist Study (Appendix 11F of EIAR), pp. 31 – 32.

¹⁷ CapeNature comments on the Scoping Report, 14 May 2018 (“SB 1”), para 3.

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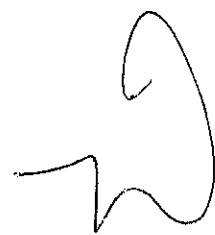

South Africa" (September 2018)¹⁸, in which the success of different rehabilitation treatments in Strandveld vegetation following surface mining at the Namakwa Sands mine was assessed, the authors note that "Rehabilitation trials were successful in establishing a vegetation cover, but were unable to return species richness and diversity to reference levels and did not resemble the reference site in species composition." (own emphasis)

40 The success of rehabilitation of this type of vegetation in the section 102 mining extension area and other existing mining areas is therefore yet to be demonstrated.

41 Furthermore, to date, no sight has been had of MSR's full, final Rehabilitation Plan as referred to in the Terrestrial Ecology Specialist Study. It simply states that "A *generalized high level revegetation & rehabilitation plan is provided in Appendix 6, but would still need to be translated into a detailed action and implementation strategy based on the final details of the mining plan at the site.*" (own emphasis)

42 I am advised that the CER has requested a copy of the Rehabilitation Plan from MSR's attorneys but that MSR has declined to furnish the document. The CER has not been able to find any publicly available information indicating whether MSR has in fact been rehabilitating in conjunction with its current mining operations, or not at all.

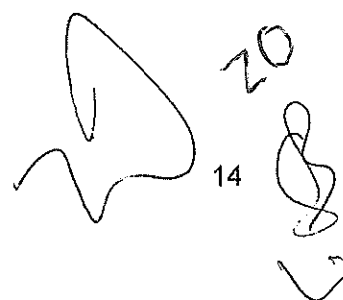
¹⁸ See footnote 4 above.


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- 43 The Terrestrial Ecology Specialist Study states that "*The total footprint of the inland mining area is approximately 75-80ha and this is not a significant loss of habitat within the affected Strandveld habitat.*"¹⁹ This view ignores the historical loss, and continued decline, of this vegetation type, coupled with the uncertainty regarding rehabilitation thereof.
- 44 Dr Peter Carrick²⁰, an expert in ecological restoration in semi-arid areas, notes a number of shortcomings in the Terrestrial Ecology Specialist Study which do not ensure adequate ecological rehabilitation. The rehabilitation goals are neither context nor site specific, and the management of surface soils fails to recognise two distinct soil components. This approach will result in crucial dilution of the true topsoil, the burial of most of the seedbank and a significant failure of rehabilitation. In addition, the prescribed distance between nets is incorrect and may result in significant rehabilitation failure, and the approach to reseedling is flawed.
- 45 Given the difficulty and uncertainty regarding the success of rehabilitation of this terrestrial vegetation, and the shortcomings of the approach to rehabilitation, the impacts of mining should be considered to have a long-term, irreversible impact on this CBA.
- 46 Allowing mining activity for the section 102 mining extension to continue despite the above uncertainties would be contrary to section 2(4)(vii) of NEMA which

¹⁹ p 31.

²⁰ Dr Peter Carrick, *personal communication*, 19 October 2020.



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requires a risk-averse and cautious approach, taking into account the limits of current knowledge about the consequences of decisions and actions.

Reliance on Search and Rescue of Species of Conservation Concern to mitigate impacts

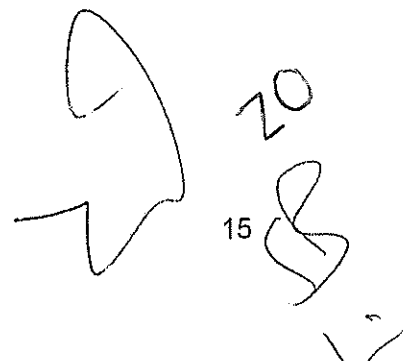
47 The Terrestrial Ecology Specialist Study acknowledges that *"The development poses a potential threat to the functioning of the affected CBAs, both in terms of a direct impact on species diversity (biodiversity pattern) as well as on broad-scale ecological processes (biodiversity process)."*²¹

48 The Study states that *"the results of the field assessment suggest that the abundance of species of conservation concern within the footprint of the inland mining areas is relatively low and is not likely to significantly impact the local populations of any listed plant species, although there could be geophytes of concern present that were not observed."* (own emphasis)

49 The Study noted limitations in information and knowledge about the species in the affected area, in that:

49.1 The survey was conducted during a drought and the sampling period excluded the spring season. The study states that *"annuals, forbs and geophytes were not adequately represented in surveys."*

²¹ Terrestrial Ecology Specialist Study, p 31.



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49.2 The study also acknowledges that the study area was not well-sampled in the past, but that SCC have been found on the adjacent Sere Wind Farm site and some of these are likely to be found on Farm Geelwal Karoo 262 as well.

50 The Terrestrial Ecology Specialist Study notes two plant SCC²² recorded on site. According to specialist botanist Nick Helme²³, four of the 40 SCC listed in Appendix 1 of this Specialist Study may occur in the coastal section, five to ten in the inland mining and facility areas, and another three or four that are not included in this Appendix. The fact that there are at least three undescribed species in comparable Strandveld habitat in an adjacent mining area is indicative of both the conservation value and poor state of knowledge of these habitats.

51 In support of her decision to dismiss the CER's appeal against the granting of an IEA for the section 102 mining extension of Tormin Mine, the Environment Minister was satisfied with the proposed mitigation measure of 'search and rescue' to ensure that there is no permanent loss of SCC.²⁴

52 Both CapeNature and the South African Biodiversity Institute (SANBI) advocate strong avoidance of search and rescue options for conserving SCC.

52.1 CapeNature's comments included that "*although it is considered good practice in certain cases to conduct search and rescue,*

²² Terrestrial Ecology Specialist Study, p18.

²³ Nick Helme, Nick Helme Botanical Surveys, *personal communication*, 17 October 2020.

²⁴ Para 1.11.28 of the Appeal Decision.

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CapeNature does not consider it a mitigation measure which will significantly lower impact ratings.”²⁵

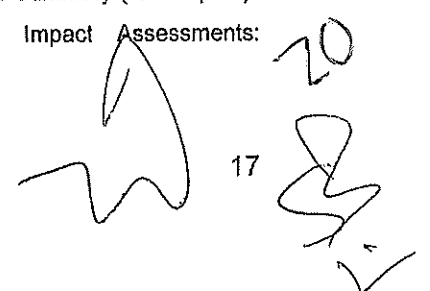
52.2 SANBI notes that *“In situ conservation is vital and should be recommended as the only option for conserving species of conservation concern. Ex situ conservation, i.e. the removal of a subpopulation from its natural habitat to an artificial environment, a practice often termed 'search and rescue', will result in the erosion of the inherent genetic diversity and characteristics of that species and increase its extinction risk in the wild. Similarly, translocation of subpopulations is an unacceptable conservation measure. Translocations are expensive and rarely successful. Even if they are successful, translocated individuals may harm other species within the receiving environment, the translocated individuals may transmit pathogens and/or parasites, and translocation may result in rapid changes in the species itself.”*²⁶ (own emphasis)

Risks to the environment if the section 102 decision is not suspended

53 I am aware from MRC's announcement of 11 September 2020 that MSR has commenced with mining activities on the inland mining area in pursuit of the section 102 mining extension. A copy of the announcement is annexed to the founding affidavit.

²⁵ CapeNature comments on Draft EIAR, dated 16 October 2018; Issues and Responses Summary (“SB 4” p 43).

²⁶ SANBI Red List of South African Plants, Guideline for Environmental Impact Assessments: <http://redlist.sanbi.org/eiaguidelines.php>.

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- 54 Should mining be allowed to continue in the section 102 extension area, there is a real risk of long-term, potentially permanent, damage to – and fragmentation of – a national and provincial CBA. The reliance on rehabilitation post-mining is inappropriate and contrary to the need for a risk-averse and cautious approach, particularly given the considerable uncertainty about rehabilitation and reliance on search-and-rescue.
- 55 The Terrestrial Ecology Specialist Study notes that in addition to the uncertainty about the degree to which the affected vegetation can be restored to near-natural levels, "the disruption of ecological processes would be *vulnerable to cumulative impact and while the current development may not have a very high impact, were the footprint to expand further, significant disruption of ecological processes would be a real possibility.*"²⁷ (own emphasis).
- 56 This indicates that even if rehabilitation is proven successful in this area in the long term, the site is already at a crucial point where, if there were to be any further expansion of the mining areas, there could be significant, irreversible impacts on this important ecological corridor. MSR has various prospecting applications underway in the surrounding farms, and there is no guarantee or indication from MSR that it will not continue to expand its mining operations in this area indefinitely. Considered against a trajectory of progressive loss of the affected CBA, and noting that due consideration of the cumulative impacts of mining was inadequate in the documentation submitted as part of the EIAR (as

²⁷ Terrestrial Ecology Specialist Study, p 31.

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expressly required in the NEMA EIA Regulations²⁸), there is no assurance that the expansion of mining in this area is ecologically sustainable.

Conclusion

57 In conclusion, it is my view that the potential impacts on this CBA, inadequacy of the proposed mitigation measures, limitations in knowledge with regards to the likelihood of success thereof, and the clear lack of alignment with national and provincial environmental legislation, policies and guidelines, warrant the Integrated Environmental Authorisation and amended mining right being reviewed and set aside, and remitted to the relevant authorities for these aspects to be properly considered.

²⁸ Section 3 (1)(j)(i) of the 2014 Regulations, as amended in 2017.

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SUSAN FRANCES BROWNLIE

I hereby certify that the deponent knows and understands the contents of this affidavit and that it is to the best of the deponent's knowledge both true and correct. This affidavit was signed and sworn to before me at Blairmont, Ceylon on this the 20th day of **OCTOBER 2020**, and that the Regulations contained in Government Notice R.1258 of 21 July 1972, as amended by R1648 of 19 August 1977, and as further amended by R1428 of 11 July 1989, having been complied with.



COMMISSIONER OF OATHS

Full names: DAVID RAYMOND GREEN
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SCIENTIFIC SERVICES

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reference SSD14/2/6/1/8/3/262_152_153_Mine_Extension_Tormin
date 14 May 2018

Jessica du Toit
SRK Consulting
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By email: jedutoit@srk.co.za

Dear Mrs Du Toit

RE: Proposed extension of Tormin Mining activities on Farm Geelwal Karoo No 262, Graauw Duinen No 152 and Klipvley Karoo Kop No 153 –Scoping Report
DMR Ref: TBA

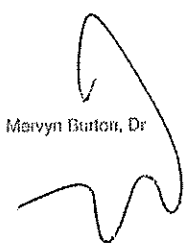
CapeNature would like to thank you for the opportunity to comment on the revised Scoping Report for this application and wish to make the following comments:

Expansion area on Farm Geelwal Karoo No 262:

1. The proposed expansion area falls within a Critical Biodiversity Area (CBA). This stretch of coastline and inland area has been identified as an important ecological corridor, the importance of which has been elevated due to notable loss and degradation of habitat between the Olifants and Sout Rivers. Nearly 4000ha of Namaqualand Strandveld was transformed between 2014 and 2016 as determined in an analysis conducted by CapeNatures' conservation planner. Although Namaqualand Strandveld is not yet listed as threatened, this loss is considered rapid. It should also be noted that although Namaqualand Strandveld had a relatively large distribution as mapped by the South African Vegetation Map, it can be divided into various sub-types. The heuweltjie sub-type has a considerably smaller extent and the coastal types have been the most subject to disturbance from mining. Overall more than 20% of the remaining extent of this vegetation type has been lost over the last decade.
2. The information from the ecological specialist included in the Scoping Report indicates that the specialist is of the opinion that the expansion area is located in an area that should be considered to be of medium-high sensitivity. Although not always the case, in this instance ecological sensitivity can be equated to conservation importance and CapeNature is of the opinion that the expansion area is of medium high conservation value and every effort must be made to minimise the footprint area.

The Western Cape Nature Conservation Board trading as CapeNature

Board Members: Prof Denver Hendricks (Chairperson), Prof Gavin Maneveldt (Vice Chairperson), Ms Marguerite Bond-Smith, Mr Mervyn Burton, Dr Colin Johnson, Prof Aubrey Reddinghuis, Mr Paul Slack



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3. Namaqualand Strandveld is extremely difficult to rehabilitate unless it is done very shortly after it is initially disturbed. It will not be possible to conduct rehabilitation shortly after disturbance, especially on the areas containing infrastructure as the equipment, processing and storage areas are likely to be in place for several years. The success of rehabilitation is largely dependent on the viability of the topsoil. Even if sufficient topsoil can be stored, it can become leached and the seedbank becomes unviable within four months – topsoil should ideally be used for rehabilitation within one month. If the applicant intends to rehabilitate, they must clearly state where topsoil will be obtained from, consider storage thereof and provide a list of species to be used. If seed is to be collected from surrounding vegetation, this must be done at the appropriate time of year. Rehabilitation methods should be provided in a detailed rehabilitation plan compiled by a rehabilitation specialist.
4. Additional infrastructure such as the desalination plant require more description regarding alternative locations investigated, not only for the plant itself but for the seawater intake and brine disposal. This impact of the infrastructure and brine disposal requires detailed investigation by the marine ecological specialists. This should include assessment of structures below the inter-tidal zone as well as structures on the cliff, beach and inter-tidal areas.

Expansion of beach mining on 10 beaches adjacent to Farm Graauw Duinen No 152 and Klipvley Karoo Kop No 153:

5. It is apparent that the cliffs and foredunes have been heavily impacted since the start of Tormin mining operation in addition to the degradation that had already occurred prior to the mining commencing. The original Environmental Management Programme for the first mining application claimed that the applicant would prevent any further degradation and would undertake responsibility for repairing and maintaining the access tracks across the cliffs to the beach. The cliff face adjacent to the mining plant area has collapsed and it appears that some effort has been made to "rehabilitate" this area by dumping sediment on the beach and against the cliff. Where was this sediment obtained from and was any input obtained from the relevant specialists?
6. The beaches and area immediately adjacent for all farms under application is considered to have high ecological sensitivity and importance. Klipvley Karoo Kop No 153 has been subject to several other assessments and many high sensitivity areas have been found on this property. Access to the beaches adjacent to this property is therefore of high concern. Although there are existing roads, some of these are poorly defined and the current mining operations included significant widening of what were previously narrow jeep tracks. All access roads (inland and beach access) should be ground truthed by a botanical specialist and the approved routes must be clearly demarcated. The width and length of all roads must be provided. Streams and water courses should be buffered from mining activities (even if they are ephemeral). Crossings should be created only if essential and then only single crossing areas should also be identified for each water course on all properties. Road maintenance and rehabilitation must be given high importance in the Environmental Management Programme.
7. The Scoping Report indicates that a buffer of 10 metres should be maintained between the mining activities and the foredunes. It is evident from other beach mining activities that this width buffer is not sufficient and consideration should be given to providing and enforcing a significantly wider buffer area.

General:

8. We note that various specialist studies have been proposed including marine and terrestrial ecology. CapeNature is of the opinion that a vegetation rehabilitation specialist must provide a detailed rehabilitation plan for the inland mining area and a qualified coastal geomorphologist must also be appointed to consider not only the impacts that may arise from additional mining but also remediation of the current erosion of the cliffs and beaches.

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9. CapeNature is of the opinion that the ratings provided in Table 41 of the Scoping Report are premature given that detailed specialist impact assessments have not been conducted (or at least this information has not been provided). If more detailed investigations have already been conducted than the information provided in the Scoping Report suggests, then this information must be provided. Also, note that if these studies have been conducted already, the applicant must allow sufficient time and budget for these studies to be updated using additional information (which may include additional ground truthed data) that is sufficient to address commenting authorities and I&APs comments and concerns.
10. The application is generally lacking in description of alternatives and if other alternatives were investigated why these were screened out. The application must fully demonstrate that the mitigation hierarchy has been fully complied with, especially given the high sensitivity of some of the areas that the applicant intends to mine.
11. We note that a rectification process is currently underway in terms of Section 24 (G) of NEMA. We will be commenting on this process separately but would like to strongly recommend that no decision be taken on this expansion application before the rectification process has been resolved. Unfortunately, it appears that the Section 24 (G) rectification application deals only with the expansion of the processing area and the new process water dam and not with any of the degradation that has occurred on the frontal dunes and cliff area which was indicated by several authorities as needing further investigation. The issues surrounding the jetty also require further clarification.
12. The habitats affected by the mining operations are far more sensitive to disturbance than put forward in the applicants' original mining proposals and severe degradation has taken place which is unlikely to be able to be fully rehabilitated. The importance of the remaining beaches and cliff tops which have not yet been disturbed by large-scale mining operations has thus been elevated. Cumulative impacts on loss of habitat are of high concern and the mine area cannot be allowed to expand indefinitely. Already the existing and proposed mining expansion area will create a significant obstacle to faunal movement, even if concurrent rehabilitation occurs. If any expansion is permitted it must be guaranteed that the remainder of the coastal corridor on Farm Geelwal Karoo No 262 will be kept intact. A biodiversity offset may need to be investigated as part of this application.

CapeNature will provide additional comment during the next phase of the impact assessment process.

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

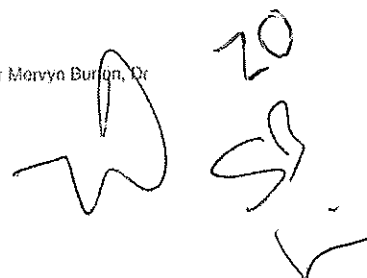
Yours sincerely



Alana Duffell-Canham
For: Manager (Scientific Services)

The Western Cape Nature Conservation Board trading as CapeNature

Board Members: Prof Denver Hendricks (Chairperson), Prof Gavin Maneveldt (Vice Chairperson), Ms Marguerite Bond-Smith, Mr Mervyn Burton, Dr Colin Johnson, Prof Aubrey Redinghuis, Mr Paul Slack



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reference SSD14/2/6/1/8/3/262_152_153_Mine_Extension_Tormin
date 16 October 2018

Scott Masson
SRK Consulting
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Private Bag X18
Rondebosch
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By email: smasson@srk.co.za

Dear Mr Masson

RE: Proposed extension of Tormin Mining activities on Farm Geelwal Karoo No 262, Graauw Duinen No 152 and Klipvley Karoo Kop No 153 – Draft Environmental Impact Assessment Report.
DMR Ref: WC 30/5/1/2/2/162 & 163 MR

CapeNature would like to thank you for the opportunity to comment on the Draft Environmental Impact Assessment Report for this application and wish to make the following comments:

The proposed inland mining expansion areaEcological Importance:

1. As stated previously in our comments on the revised Scoping Report, the proposed expansion area is located within a Critical Biodiversity Area (CBA). This stretch of coastline and inland area has been identified as an important ecological corridor, the importance of which has been elevated due to notable loss and degradation of habitat between the Olifants and Sout Rivers.
2. The National Environmental Management: Biodiversity Act (NEMBA) states that "It is crucial to avoid loss and degradation of natural habitat in critical biodiversity areas". The Western Cape Biodiversity Spatial Plan (WCBSP) which has mapped Critical Biodiversity Areas (CBAs) has been produced by CapeNature and the Department of Environmental Affairs and Development Planning and is supported at a national level by the South African National Botanical Institute (SANBI). This is an essential informant to refer to when determining the severity of impacts on biodiversity.
3. The role and importance of CBAs to meet South Africa's international obligations to the convention on Biological Diversity has not been addressed. Critical Biodiversity Areas

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are the minimum areas required to meet biodiversity targets for ecosystems and species. Any loss of intact CBA should be considered to have a high negative impact on at least a regional level. We therefore do not agree with the terrestrial specialists' opinion that the loss of habitat will only have impacts at a local extent as loss of habitat in a CBA compromises the ability for conservation targets to be met. The mining proposal will result in the loss of a large area of habitat which is in a natural condition and cause fragmentation within a CBA.

4. The Mining and Biodiversity Guidelines¹ strongly advocate the use of best available biodiversity information, which includes the use of biodiversity spatial plans which have come out of a process of Systematic Conservation Planning, which have been produced not only in the Western Cape but throughout South Africa. Spatial biodiversity planning has supported the identification of biodiversity priority areas which are important for conserving a representative sample of ecosystems and species and/or for maintaining ecological processes and/or for the provision of ecological services. Critical Biodiversity Areas (CBAs) are an example of a Biodiversity Priority Area referred to in the Mining and Biodiversity Guidelines. However, the application has not given adequate consideration to the Mining and Biodiversity Guidelines.

Rehabilitation:

5. Namaqualand Strandveld is difficult to rehabilitate and the rehabilitation process is likely to be extremely slow especially due to the aridity of the region. Differentiation also needs to be made between rehabilitation and revegetation. Although some revegetation is likely to occur, it is unlikely that the site will return to an ecologically equivalent habitat post-mining. There is extremely limited proof of successful rehabilitation (as opposed to revegetation) in this region and impact ratings should not be lowered until proof of rehabilitation success is made evident. At this stage it is unknown what the success of rehabilitation will be and the ecological specialist acknowledges that this is the case. The success of rehabilitation of existing mining areas should be demonstrated before additional areas are authorised for mining expansion.
6. A high level rehabilitation and revegetation plan has been included as Appendix 6 of the terrestrial ecology specialist report. However, there are no clear rehabilitation standards and it is uncertain what the likely outcomes of the plan will be. It also does not provide clear timeframes for rehabilitation.
7. Taking the difficulty and uncertainty regarding rehabilitation of this habitat into consideration it is apparent that the impacts of mining on habitat and species should be considered to have a long-term, possibly permanent impact.

Search and Rescue:

8. The ecological specialist report acknowledges a limitation of the survey period not being conducted in the spring season and states that "annuals, forbs and geophytes were not adequately represented in the surveys". He also acknowledges that the study area was not well sampled in the past but Species of Conservation Concern (SCC) have been found on the adjacent Sere Wind Farm site and some of these are likely to be found on Farm 262 as well. A follow-up spring survey is suggested but with the main purpose of conducting search and rescue of SCC. Note that although it is considered good practice in certain cases to conduct search and rescue, CapeNature does not consider it a mitigation measure which will significantly lower impact ratings. Avoidance and in situ conservation of species does, however, have the potential to lower negative impact ratings.

¹ Department of Environmental Affairs, Department of Mineral Resources, Chamber of Mines, South African Mining and Biodiversity Forum and South African National Biodiversity Institute. 2013. Mining and Biodiversity Guideline: Mainstreaming biodiversity into the mining sector. Pretoria.
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Consideration of Biodiversity Offsets:

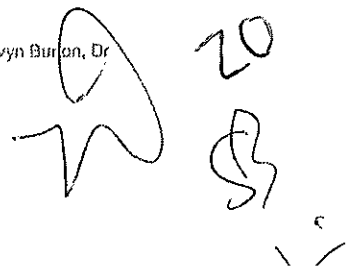
9. The Western Cape Guideline on Biodiversity Offsets and the Draft National Policy on Biodiversity Offsets (gazetted 31 March 2017) both state that 'Residual impacts of rated from medium' to high significance should trigger a requirement for a biodiversity offset'. According to the draft national policy 'Areas of composite biodiversity significance recognised in approved biodiversity policy, bioregional, biodiversity or spatial conservation plans' such as CBAs are areas in which impacts should preferably be avoided and where an offset ratio of 'at minimum 20 times the impacted area' should be applied. Furthermore, offset sites are to comprise 'areas of highest conservation priority that are currently without protection'. The need to consider offsets is also set out in DEA's 2017 Need and Desirability Guideline.
10. We note that the Draft Environmental Impact Assessment Report states that the ecological specialist did not consider a biodiversity offset necessary. However, the residual impact ratings provided for construction and operational phase impacts on vegetation and species (plants and animals) are medium negative, which is within the range in which the use of biodiversity offsets are supported by the provincial guideline and the national policy. Furthermore, the residual impact rating provided relies on some assumptions regarding the success of rehabilitation as well as certain mitigation measures which are not considered by CapeNature to lower impact ratings such as search and rescue of plant Species of Concern and it therefore likely that residual impacts could be higher than medium negative.
11. CapeNature is therefore of the opinion that investigation and implementation of an appropriate, feasible biodiversity offset is warranted by the impacts of the proposed mining expansion. The selection of the area to be used as an offset must be done through a systematic, measurable and defensible process that would meet the principles set out in the draft national policy on biodiversity offsets. The offset should entail the protection of an adequate sized area, representative of the biodiversity (processes, habitat and species) that will be lost as well as financial provision for management of the area. Managing the remainder of the remainder of Geelwal Karoo 262 for conservation on its own does not constitute an appropriate biodiversity offset.

Expansion of beach mining on 10 beaches adjacent to Farm Graauw Duinen No 152 and Klipvley Karoo Kop No 153

12. Although the current environmental impact assessment report states that the consultants are not required to consider impacts of existing mining operations and SRK acknowledges that they have not reviewed the previous Environmental Authorisation conditions, these conditions and compliance therewith should not be ignored when considering the appropriateness and feasibility of implementing future mitigation measures for preventing similar negative impacts from occurring. It is apparent that most of the severe erosion and cliff collapse which has occurred, happened after Tormin mine started operating and if the previous recommended mitigation measures were not successful the reasons behind this should be carefully interrogated. Remedial measures in the case of mitigation measures failing or not being complied with for future mining activities should also be discussed in detail as part of this application.
13. The calculation for the buffer width for the beach mining operations depends heavily on certain conditions and was based on several assumptions. Firstly, a 10m wide buffer zone is viewed as acceptable but only if measured from the crest of the mining bench after provision has been made to its natural repose angle. Assumptions include a maximum beach mining depth of 6.0 metres and bench face angles of inland and beach mining at repose of 30° to 35°. These are all quite technical aspects to measure and monitor and due to the highly dynamic nature of the beaches, will need to be done frequently and buffer markers may need to be shifted. Who will be appointed to conduct this monitoring and how frequently will it be done?

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14. The marine specialist report states that "the proposed operations will severely impact the beach habitat and associated communities" but the impact ratings are not that high due to the expected rapid recovery of the beach communities post mining. Mitigation measures listed include active rehabilitation involving backfilling and re-structuring of the mining area. This requires further elaboration with regard to equipment to be used, duration of works, monitoring etc. and the merits thereof should be discussed against the possibility of allowing beaches to passively rehabilitate.

General (for inland and beach mining sites)

15. Alternatives in terms of location, layout and footprint size are inadequate. Alternatives form an essential part of showing that the mitigation hierarchy was fully implemented prior to selecting a preferred development alternative. Specialists have only been provided with one site footprint to assess against the no-go alternative and discussions surrounding the no-go alternative are very limited.
16. Various parties raised concerns regarding the effectiveness of certain mitigation measures provided in the Scoping Report. The comments and response report only contains the following response "only mitigation measures that MSR are able to commit to are included in the consideration of post-mitigation impact ratings". Are the specialists aware of this? All of the mitigation measures put forward by the specialists must be included as essential conditions. If this is not possible, then all of the specialists must be given the opportunity to review their recommendations and impact ratings.

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

Yours sincerely



Alana Duffell-Canham
For: Manager (Scientific Services)

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date 30 November 2018

Portia Seaba
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Private Bag X9
Rogge Bay
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By email: portia.seaba@dmr.gov.za

Dear Ms Seaba

RE: Proposed extension of Tormin Mining activities on Farm Geelwal Karoo No 262, Graauw Duinen No 152 and Klipvley Karoo Kop No 153 – Final Environmental Impact Assessment Report and Comments and Response Report.
DMR Ref: WC 30/5/1/2/2/162 & 163 MR

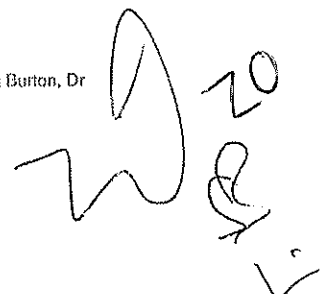
CapeNature received notification on the 14th of November that the final Environmental Impact Assessment Report (EIR) for this application has been submitted to your department. We received this notification via email with an attached comments and response report and a link to the Final Environmental Impact Report (EIR) and Environmental Management Programme (EMPr).

We wish to submit in writing that we are not satisfied with the way our comments (as well as those of other stakeholders) were addressed and that we disagree with some of the findings and recommendations laid out in the EIR. Our previous comments dated 16 October have reference and should be read in conjunction with the following additional comments:

1. A large portion of Farm Geelwal Karoo has been determined as Critical Biodiversity Area. This is not only to maintain ecological processes associated with the coast (although this is important) and for faunal movement but also for climate change adaptation – the southern part of the farm forms the coastal portion of a provincial climate change corridor. The CBA determination is also for coastal resource protection and to meet biodiversity targets for Namaqualand Strandveld – this determination was done using a province wide analysis. To generate figures which more accurately reflect the current degree of habitat loss in the Western Cape, CapeNature has produced updated provincial ecosystem status statistics in accordance with the National

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principles, criteria, and approach¹. The findings from this indicated that Namaqualand Strandveld has 66.82% of its original extent remaining (this is likely to be less now as the analysis was done in 2016²). The ecological specialist conducted his study without knowledge of the best available information regarding the remaining extent of Namaqualand Strandveld.

2. Regardless of the threat status of the vegetation type, the site has been identified as part of the minimum area required to meet biodiversity targets and this elevates its importance and the significance of the impacts and therefore the significance of any residual impacts should also be raised to high or at least medium, which immediately points to a biodiversity offset being required, both in terms of the Draft National Policy on Biodiversity Offsets³ and the Draft Western Cape Guideline on Biodiversity. The only time this would possibly not be applicable for an impact on a CBA would be if the impacts are negligible or short-term which does not apply to this application. The impact ratings have been calculated as if they were in a comparable area outside of a CBA and no adjustment of the impact rating has been allowed in recognition of the conservation importance of this area even though the ecological impact assessment report states that *"the diversity of the areas is likely to be permanently depressed and that there would be a long-term negative residual impact on these areas"*. The response in the CRR that vegetation sensitivity is discussed in the EIA and that an ecological assessment has been undertaken is not an adequate response to the residual negative impacts on CBAs. It should also be remembered that even where there may be options to meet targets for certain ecosystems elsewhere in the landscape, a much larger area may be required to represent the same features and this may also have impacts on selection of other sites supporting other ecosystems.
3. It should be noted that according to Table 44 in the FEIR, the impacts during the construction phase are not reduced by the proposed mitigation measures and the impact on *"loss of vegetation, plant SCC and ecological connectivity"* (which is the most significant impact on the affected CBAs) during the operational phase is still only reduced to medium negative and any reduction of impact significance is dependent mostly on the assumption that successful rehabilitation will take place as discussed later in this letter. The third and fourth mitigation measures (provided for Impact TE4) should have already been assumptions made when assessing the development footprint (e.g. that the footprint provided to be assessed will be the maximum footprint and the boundaries will be adhered to) and mitigation such as search and rescue is not a mitigation measure that will lower significance ratings.
4. CapeNature is therefore of the opinion that the significance rating of the residual impacts should be closer to "high" rather than "medium" but regardless, such residual impacts of medium or high significance trigger the need for a biodiversity offset. In this application, residual negative impacts of medium significance are predicted during both construction and operational phases on vegetation and flora, and on terrestrial fauna, and cumulative impacts likewise are predicted to be of medium significance. The latter

¹ Government Gazette 34809, No. 1002. National list of ecosystems that are threatened and in need of protection. National Environmental Management: Biodiversity Act, 9 December 2011.

² The 2016 assessment of habitat loss primarily utilized CapeNature's revised 2013/14 land cover product, as well as the 2010 Western Cape Biodiversity Framework land cover data. All land cover classes representing the outright loss of natural habitat (e.g. cultivated areas, forestry plantations, mines, dams, urban or built-up areas) or areas of severe degradation (e.g. pure invasive alien plant stands, significantly over-grazed or heavily eroded areas devoid of vegetative cover) were removed from the ecosystem map described above to create a remaining natural habitat layer. In addition, all areas falling within DAFF's 2007, 2013, or 2015 field crop boundary datasets were removed from the remnant layer described above.

³ According to the draft national policy, 'Areas of composite biodiversity significance recognised in approved biodiversity policy, bioregional, biodiversity or spatial conservation plans' such as CBAs are areas in which 'Impacts preferably to be avoided', and where an offset ratio of 'at minimum 20 times the impacted area' should be applied. The need to consider offsets is also set out in DEA's 2017 Need and Desirability Guideline ('*fourthly, unavoidable impact that remain (sic) after mitigation and remediation must be compensated for through investigating options to offset the negative impacts*').

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are of particular importance, given that they relate to a "reduced/ impaired ability to meet conservation targets" and "impacts on CBAs and impaired ecological function". P48-9 of Appendix 11F. Both of these impacts thus undermine South Africa's ability to meet its national and international obligations for biodiversity conservation.

5. It is insufficient and indefensible to state only that mitigation measures were recommended to avoid and/ or minimise impacts – NEMA explicitly requires negative impacts to be 'remedied'. Where residual negative impacts of medium or high significance are likely to remain after rehabilitation (as noted in the EIA) then additional remedy in the form of biodiversity offsets must be applied. It is inadequate to state in the CRR that *"the specialist does not consider a biodiversity offset to be warranted based on the significance of the impact"*. The appropriate guidelines and policies must also be consulted.
6. The report states that *"In the longer-term MSR should enter the Geelwal Karoo 262 site into a conservation agreement as this will improve the biodiversity management of the site and partly offset some of the impacts associated with the current mine expansion application."* As such, *the improved management of the property would partly offset some of the impacts associated with the mine expansion"*. The recommendation to enter into a conservation agreement and manage the remainder of the site for conservation has not been fully explored. The CRR states that *"improved management of the property would enhance this value and reduce the impact of the project on broad-scale ecological processes as well as the values inherent in the CBA status of the site"*. However, the FEIR does not investigate and provide options for managing the remainder of the property for conservation. This recommendation is therefore vague and provides little value to the impact assessment as there is no conservation management plan or agreement nor even specific timelines (the report states "in the longer term" but this is very unspecific) by when these should be completed. Furthermore, the CRR acknowledges that the recommended conservation agreement is not an offset as there is no additionality present so how this proposed improved management translated into firm mitigation measures which lower impacts is questionable.
7. The inland application area consists of a 75ha mining area and a 64ha plant expansion area. This must be considered cumulatively on site with the existing mining footprints and processing site. The processing plant footprint should be considered as permanent as due to the duration of the project it will not be possible to fully rehabilitate this site as the substrate will be permanently altered. A detailed rehabilitation plan has not been provided and rehabilitation standards have not been set. It is not acceptable to only draw up detailed rehabilitation requirements after the EA has been issued. A detailed rehabilitation plan, with associated standards, must be compiled by a rehabilitation specialist as part of the application and must be made available for comment to commenting authorities and I&APs. The responses in the comments and response report with regard to a request to provide more details regarding rehabilitation were as follows: *"The Terrestrial Ecology Impact Assessment includes a rehabilitation plan (Appendix 11F) with a recommendation to develop a detailed rehabilitation plan at a later stage"*. Developing a more detailed plan "at a later stage" is not appropriate as rehabilitation is put forward as one of the main mitigation measures - the comments and response report states that *"The Terrestrial Ecology Impact Assessment clearly stipulates that the assessed impacts are based on reasonable levels of rehabilitation being achieved and should these not be achieved then impacts would be elevated and any additional mining would have escalated impacts"*.
8. The approach to giving assurance of rehabilitation is to 'monitor' – which is contrary to the NEMA principles requirement to take a risk averse and cautious approach. In such cases where the outcome of rehabilitation efforts is uncertain, it is best practice to assume 'worst case' rehabilitation and exclude this form of mitigation from measures of

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residual negative impacts (e.g. in Afrisam mining application in Saldanha Bay Municipality). The terrestrial ecology specialist report acknowledges that rehabilitation success is uncertain (p31 of Appendix 11F), *"Provided that the cover of the affected area can be restored to near-natural levels, then the long-term impact of the inland mining on ecological processes would be relatively low. However, the degree to which this ideal will be achieved is unknown and can't be assumed."*

The ecological specialist also notes that while *"rehabilitation of the inland mining area can largely ameliorate the long-term impacts on connectivity, the diversity of the affected area will never be fully restored and regardless of the mitigation and rehabilitation applied, some residual impact will remain in this regard"* (p32 of Appendix 11F). The specialist states in the Conclusions section (no page number) that *"A lot of practical lessons have been learnt in this regard at other mines in the area such as Brand-se-Baai and it would be valuable to investigate the approaches that have been successful here first hand."*, implying that these approaches and outcomes have not been investigated for the purpose of this application. Considering the requirement to take a risk-averse and cautious approach and considering there is no assurance that rehabilitation will be effective, means having to consider negative impacts on a Critical Biodiversity Area in the absence of rehabilitation.

Conclusion:

The Western Cape Guideline on Biodiversity Offsets and the Draft National Policy on Biodiversity Offsets (gazetted 31 March 2017) both state that residual impacts rated medium or high significance should trigger a requirement for a biodiversity offset.

Some of the post-mitigation in impact ratings provided for construction and operational phase impacts on habitat, species and ecological connectivity are medium negative (which is a conservative rating in CapeNature's opinion mainly due to the high level of uncertainty regarding the success of rehabilitation) which is within the range in which the use of biodiversity offsets are supported by the provincial guideline and the national policy.

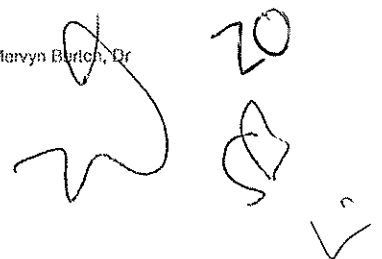
CapeNature is therefore of the opinion that investigation and implementation of an appropriate, feasible biodiversity offset is warranted by the impacts of the proposed mining expansion. This study must be conducted by an appropriately qualified specialist with experience in offset investigations (which involves not only the identification of suitable receiving areas but also the mechanisms by which these areas will be secured) completed prior to a decision regarding Environmental Authorisation is made.

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

Yours sincerely



Alana Duffell-Canham
Scientist: Land Use Advice and Conservation Planning

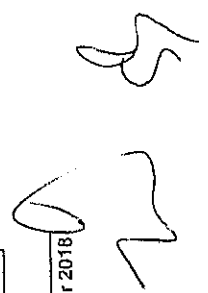


SBA

Interested and Affected Parties	Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Consultation Status
<p>Other Competent Authorities affected</p> <p>Alana Duffel-Canham (CapeNature)</p>	<p>3 February 2017 (on BID), 17 May 2017 (on prior Scoping Report) and 14 May (on updated Scoping Report), 18 October 2018 (on draft EIA Report)</p>	<p>The importance of this stretch of coastal habitat has been elevated due to the loss of this habitat type elsewhere between the Olifants River and the Sout River.</p> <p>The dominant vegetation type on site is Namaqualand Strandveld, which has little formal protection and is steadily declining.</p> <p>Namaqualand Strandveld is extremely difficult to rehabilitate, especially as infrastructure is likely to be in place for several years.</p> <p>Rehabilitation methods should be provided in a detailed rehabilitation plan. CapeNature is of the opinion that a vegetation rehabilitation specialist must provide a detailed rehabilitation plan for the inland mining area.</p> <p>Access roads for the existing mining operation have not been rehabilitated, and some access tracks have been significantly widened to accommodate trucks.</p> <p>The foredune rehabilitation requirements have not been complied with, and aerial photography suggests that significant erosion of frontal dunes is occurring.</p>	<p>A Terrestrial Ecology Impact Assessment (Appendix 11F) has been undertaken as part of the Impact Assessment Phase.</p> <p>This constraint is noted, and rehabilitation measures have been addressed in the Terrestrial Ecology Impact Assessment (Appendix 11F). MSR currently proposes to undertake rehabilitation in the strand line mining area as soon as the mining path allows.</p> <p>The Terrestrial Ecology Impact Assessment includes a rehabilitation plan (Appendix 11F), with a recommendation to develop a detailed rehabilitation plan at a later stage.</p> <p>The access roads at Tormin Mine are still in use and have thus not been rehabilitated. SRK was appointed to undertake the EIA process for the mine expansion and has not reviewed previous authorisation conditions pertaining to existing mine operations as part of this process.</p> <p>Your comment has been noted. SRK was appointed to undertake the EIA process for the mine expansion and has not reviewed previous authorisation conditions pertaining to existing mine operations as part of this process.</p>	<p>Finalised</p> <p>Finalised</p> <p>Finalised</p> <p>Finalised in terms of this EIA process (but issue may be addressed directly by MSR)</p> <p>Finalised in terms of this EIA process (but issue may be addressed directly by MSR)</p>

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		<p>the conditions of the environmental authorisation issued by DEA&DP.</p> <p>The s24G rectification application deals only with the expansion of the processing area and the new process water dam and not with any of the degradation that has occurred on the frontal dunes and cliff area which was indicated by several authorities as needing further investigation. The issues surrounding the jetty also require further clarification.</p> <p>The proposed expansion area falls within a CBA. This stretch of coastline and inland area has been identified as an important ecological corridor, the importance of which has been elevated due to notable loss and degradation of habitat between the Olifants and Sout Rivers. Nearly 4 000 ha of Namaqualand Strandveld was transformed between 2014 and 2016. Overall, more than 20% of the remaining extent of this vegetation type has been lost over the last decade.</p> <p>Although Namaqualand Strandveld is not yet listed as threatened, this loss is considered rapid. It should also be noted that although Namaqualand Strandveld had a relatively large distribution as mapped by the South African Vegetation Map, it can be divided into various sub-types.</p> <p>The ecological specialist indicates that the expansion area is located in an area that should be considered to be of medium-high sensitivity. CapeNature is of the opinion that the expansion area is of medium high conservation</p>	<p>refused the EA at the Scoping Phase, citing a requirement to undertake a section 24G process in terms of NEMA for the rectification of unlawful activities. MSR appointed SRK to undertake a s24G application process in terms of NEMA and Government Notice (GN) R698 of 2017 for two activities identified in the EMPP Performance Assessment of Tormin Mine conducted by Jomela Consulting (Pty) Ltd in February 2018:</p> <ul style="list-style-type: none"> • Clearing an additional 3.9 ha area adjacent to the processing (plant) facilities, used for stockpiling; and • Construction of a 2.2 ha dam. <p>DMR will consider relevant aspects in their decision on whether to grant the Section 102 application submitted by MSR.</p> <p>The terrestrial ecology specialist has assessed the impact of the project on Namaqualand Strandveld (Appendix 11F). The specialist acknowledges that Namaqualand Strandveld can be delineated into sub-categories. Refer to Section 6.8.2 of the EIA Report.</p> <p>Your comment is noted. The infrastructure expansion area layout alternative (refer to Section 2 (h)(ii)) was amended in such a way as to maximise the ecological corridor between the infrastructure expansion area and the</p>	<p>Finalised</p> <p>Finalised</p>



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		<p><u>CapeNature does not consider search and rescue a mitigation measure which will significantly lower impact ratings.</u></p>	<p><u>depressed and that there would be a long-term residual negative impact on these areas.</u></p> <p><u>The Terrestrial Ecology Impact Assessment does not consider search and rescue to be a significant mitigation measure to reduce impacts. In general, habitat loss is identified as the primary impact and the assessed impacts are based on that premise. However, there are certain situations in which search and rescue can be considered a useful and effective mitigation measure. This is context and species specific. For example, where a long-lived species is limited by recruitment opportunities, then saving adult plants is an important step in supporting the existing population. In addition, search and rescue can be useful where the disturbance is transient (e.g. along a power line) where some disturbance occurs during construction and when some individuals of listed species may be impacted. The majority of the disturbance footprint can revert back to natural vegetation after construction and maintaining the local population of species of concern can be useful in promoting the recolonisation of the disturbed areas.</u></p> <p><u>However, this is of limited application in the current situation, where large areas would be cleared. For some species, there would potentially be some value in translocating individuals from areas being cleared to rehabilitation areas as this would increase the value and diversity of the rehabilitated areas.</u></p> <p><u>The Terrestrial Ecology Impact Assessment (and EIA Report) clearly states that the assessed impacts are contingent on effective mitigation, and especially the rehabilitation of the cleared areas.</u></p>	<p><u>Finalised</u></p>
		<p><u>Residual impact ratings provided for construction and operational phase impacts on vegetation and species (plants and animals) are medium negative, which is within the range in which the use of biodiversity offsets are</u></p>		<p><u>Finalised</u></p>

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Assessing the success of experimental rehabilitation on a coastal mineral sands mine in Namaqualand, South Africa[§]

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The success of different rehabilitation treatments following surface mining on the arid west coast of South Africa was assessed. Treatments consisting of one or a combination of topsoil addition, plant translocation and seeding were applied to experimental rehabilitation sites in 2001, while the treatment of another site in 2008 combined all three techniques. Vegetation and species cover, species richness, diversity and evenness, and grazing capacity of rehabilitation sites were sampled during winter 2009 and summer 2010, and compared with a reference site. All rehabilitated sites achieved the objective to attain a minimum grazing capacity of 20 ha per small stock unit. Rehabilitation trials were successful in establishing a vegetation cover, but were unable to return species richness and diversity to reference levels and did not resemble the reference site in species composition. Common species in reference sites were absent or only occurred in low numbers. No treatment outperformed the others and further experimentation is needed to determine the most suitable combination. It is recommended that rehabilitation should be done in multiple stages in future to improve seedling survival and to return species that are unable to establish in the adverse conditions present at the onset of rehabilitation.

Keywords: reseeded, strip mining, Succulent Karoo, topsoil, translocation

Introduction

The mining sector forms an important part of the South African economy (Tanner 2007; Masetlana et al. 2008; Chamber of Mines of South Africa 2009) and has been an important driver of the Namaqualand regional economy. Strip mining for diamonds and heavy minerals is considered the greatest threat to the biodiversity of the region (Mucina et al. 2006; Botha et al. 2008) as it is the greatest source of degradation (Carrick and Kruger 2001; Cousins et al. 2007). While terrestrial diamond mining is in decline (Glavovic and Boonzaier 2007; van Wyk et al. 2009), heavy minerals mining looks set to increase with several permit applications in progress. Strip mining is considered one of the most destructive mining methods as it involves the total removal of topsoil and vegetation from large stretches of land (Milton et al. 1997; Cooke and Johnson 2002; Botha et al. 2008). This is of particular concern in an environment, such as Namaqualand, where revegetation is considerably restricted by harsh conditions, such as an arid and windy climate, as well as saline and nutrient-poor soils (Lubke and Avis 1998; Milton 2001; Hältbich 2003; Carrick and Kruger 2007; Botha et al. 2008).

The mining industry worldwide is committed to sustainable development and, therefore, also to responsible environmental management (ICMM 2006). As a result, many mining companies are taking their responsibility to

rehabilitate mined-out land ever more seriously. The South African Government has proclaimed a number of acts over the past decades in order to ensure responsible environmental management, including the National Environmental Management Act 107 of 1998 and the Minerals and Petroleum Resources Development Act 28 of 2002 (MPRDA). Large mine blocks and prospecting trenches are still visible along the Namaqualand coast and their lack of vegetation indicates that rehabilitation used to be the exception rather than the rule before the Minerals Act 50 of 1991, and subsequently the MPRDA, came into effect (Milton et al. 1997; Carrick and Kruger 2007; Botha et al. 2008). The MPRDA requires that mined-out land 'is rehabilitated, as far as is practicable, to its natural state, or to a predetermined and agreed standard or land use which conforms to the principles of sustainable development' (RSA 2002).

Several standards and best practice guidelines for environmental management in mining have been developed internationally and locally (DITR 2006; ICMM 2006; Tanner 2007; IFC 2012; DEA et al. 2013). In general, rehabilitation goals focus on ecosystem stability, as well as some form of land capability, such as grazing potential, while rehabilitation objectives normally focus on specific aspects of the structure and functioning of ecosystems (Cooke and Johnson 2002; Bainbridge 2007; Tanner 2007). When this

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