SAND MINE ON A PORTION OF THE FARM DE **KLERKSKRAAL 231 IN THE THEUNISSEN DISTRICT,**

FREE STATE PROVINCE

ENVIRONMENTAL PERFORMANCE ASSESSMENT / ENVIRONMENTAL AUDIT REPORT

FS30/5/1/3/2/10207MP

AUDIT PERIOD:

June 2021 - May 2022

Prepared For:	Prepared By:
Blazecor 226 CC	Greenmined Environmental (Pty) Ltd
Contact person: Mr. M. du Plessis	Contact person: Christine Fouche
Cell: 083 410 8286	Cell: 082 811 8514
Fax: 086 546 0579	Fax: 086 546 0579
Postal Address:	Postal Address:
PO Box 204	Suite 62
Brandfort	Private Bag X15
9400	Somerset West
	7129
	ined





PROJECT DETAIL:

Permit Number:	FS30/5/1/3/2/10207MP	Date of Commencement:	November 2019
Site Name:	De Klerkskraal Sand Mine	Inspection Date:	03 June 2022
Permit Holder:	Blazecor 226 CC	Other	
Report Number:	23 (EPA Report 03)	Authorisations:	WUL: 27/2/1/C1142/101

DETAIL OF AUDITOR (APPENDIX 7 SUB-REGULATION 3(A) & (B)):

ECO:	Christine Fouché		
Expertise:	Ms Fouche has a Diploma in Nature Conservation and a BSc in Botany and Zoology with seventeen years experience in doing environmental impact assessments and compliance monitoring in South Africa.		
Declaration of Independence:	 I Christine Fouche declare that – I act as independent environmental control officer in this compliance audit; I will perform the work relating to the audit in an objective manner, even if the results and findings are not favourable to the holder of the authorisation; I have expertise in conducting environmental compliance audits, including knowledge of the Act and regulations that have relevance to the activity; I will adhere to and comply with all responsibilities as indicated in the National Environmental Management Act and Environmental Impact Assessment Regulations. I do not have and will not have any vested interest in the activity other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2014. Signature of ECO Date: 08 June 2022 		



1. PROJECT SPECIFIC DETAIL

ITEM	MINING RIGHT/PERMIT HOLDER	
Company Name	Blazecor 226 CC	
Contact Person	Mr. M. du Plessis	
Tel Number	N/A	
Cell Number	083 410 8286	
Postal Address	PO Box 202, Theunissen, 9410	
ITEM	AUTHOR CONSULTANT DETAIL	
Company Name	Greenmined Environmental (Pty) Ltd	
Contact Person	Christine Fouche	
Cell Number	0822 811 8514	
E-mail Address	Christine.f@greenmined.co.za	
Postal Address	Suite 62, Private Bag X15, Somerset West, 7129	
ITEM	LOCATION AND AREA INFORMATION	
Site Name	De Klerkskraal Sand Mine	
Property Description	De Klerkskraal Farm 231, Theunissen District	
Location	The site is situated approximately 35 km from Theunissen along the R30 towards Welkom, near Bloudrif in the Welkom district	
Size of Mining Area	4.8 ha	



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2. ENVIRONMENTAL AUDIT REPORT

SCOPE & PURPOSE OF ENVIRONMENTAL AUDIT (APPENDIX 7 SUB-REGULATION 3(C)):

This environmental performance assessment (EPA) / environmental audit report (hereafter referred to as the EPA) was compiled in terms of the requirements of the NEMA EIA Regulations, 2014 (as amended).

OBJECTIVE:

The objective of the EPA is to evaluate compliance of the operational activities with the environmental management programme (EMPR) and Environmental Authorisation (EA) issued by the DMRE for the site.

INSPECTED AREAS:

The inspection included an assessment of the following areas:

- » Washing and Screening plant area;
- » Active mining area;
- » Stockpile area;
- » General working area
- » Office and storage areas.

In order to establish the environmental compliance assessment of the operation, the mining site was inspected on foot by the Environmental Control Officer, Christine Fouche of Greenmined Environmental accompanied by site management.

ASSUMPTIONS, UNCERTAINTIES OR GAPS IN KNOWLEDGE (APPENDIX 7 SUB-REGULATION 3(F)):

The assumptions made in this document, stem from specific information gathered during the site audit and background information gathered from site management.

	The site is situated approximately 35 km south of Theunissen along the R30
Site Location:	towards Welkom near Bloudrif. The mining area is approximately 4.8 ha in extent.
	A – 28.140256°S; 26.670736°E
	B – 28.139903°S; 26.671786°E
Site Coordinates:	C – 28.138353°S; 26.671411°E
	D – 28.137663°S; 26.671988°E
	E – 28.137252°S; 26.671658°E
	F – 28.137028°S; 26.670997°E
	G – 28.137403°S; 26.670481°E

LOCATION:



H – 28.138631°S; 26.669492°E
I – 28.138828°S; 26.669611°E
J – 28.138719°S; 26.669611°E

PROJECT DESCRIPTION:

Blazecor 226 CC has approval to mine a 4.8 ha area on the farm De Klerks Kraal No 231. The mining procedure entail sand mining through direct excavation of the proposed footprint area. The material from the mine is then processed at the screening/washing plant before it is stockpiled and sold to clients in the building industry in and around Theunissen area.

SITE CONDITIONS:

Clear sunny, windless day with dry soil conditions.

REPORTABLE ENVIRONMENTAL INCIDENTS:

Incident Date:	N/A
Incident No:	N/A
Incident:	No environmental incidents occurred during the audit period.
How addressed:	N/A
When addressed:	N/A

ADOPTED METHODOLOGY

(APPENDIX 7 SUB-REGULATION 3(D):

COMPLIANCE SCORE	DESCRIPTION
1	Task not achieved
2	Task 20% achieved
3	Task 50% achieved
4	Task 80% achieved
5	Task 100% achieved in accordance with the EMP

NON-COMPLIANCE SCORE	DESCRIPTION
1	LOW – Mitigation not needed / mitigation measures to be maintained
2	MEDIUM – Mitigation should be considered
3	HIGH – Mitigation compulsory



INSPECTION ASPECTS:

DESCRIPTION	COMPLIANCE SCORE	NON- COMPLIANCE SCORE	STATUS	COMMENTS
		LEGISLATIO		E:
National Environmental Management Act, 1998 (Act No 107 of 1998) and the Environmental Impact Assessment Regulations, 2014 (as amended)	5	-	Compliant	-
Copy of the EA and EMPR available on site	5	-	Compliant	-
Mineral and Petroleum Resources Development Act, 2002 (Act No 28 of 2002)	5	-	Compliant	-
Mining Permit available on site	5	-	Compliant	A copy of the latest renewed mining permit is available on site.
National Water Act, 1998 (Act 36 of 1998)	5	-	Compliant	-
National Environmental Management: Waste Act, 2008 (Act No 59 of 2008)	5	-	Compliant	-
National Environmental Management: Biodiversity Act, 2004 (Act No 10 of 2004) (NEM:BA)	5	-	Compliant	The weeds/invader plant species reported on in the previous audit report was removed from site.
Hazardous Substances Act, 1973 (Act 15 of 1973)	5	-	Compliant	-
	AS	PECTS OF THE AF	FECTED ENVI	RONMENT
Topsoil: Overburden Management				
Topsoil stripping	5	-	Compliant	The topsoil is stripped when the mine is expanded.
Topsoil storage (heaps not exceeding 2 m)	5	-	Compliant	-
Topsoil heaps vegetated	5	-	Compliant	Vegetation establishes on the topsoil heaps through succession.
Overburden stripped & stockpiled	N/A	-	-	-



DESCRIPTION	COMPLIANCE SCORE	NON- COMPLIANCE SCORE	STATUS	COMMENTS
Stockpiles monitored for erosion, weeds and foreign matter	5	-	Compliant	-
Topsoil returned to rehabilitated area	5	-	Compliant	Rehabilitation has been significantly impacted/hampered by the frequent opening of the Aldam floodgates. However, at the time of the inspection, site management was busy with the shaping of the mined areas.
		Veg	etation	
Protected plants (if any) sheltered from mining activities	N/A	-	-	No protected plants were identified on site.
Removal of vegetation limited to smallest possible area	5	-	Compliant	-
Aliens & weeds controlled on site	5	-	Compliant	The weeds/invader plant species reported on in the previous audit report was removed from site.
Seeding of rehabilitated area done with indigenous vegetation found within 5 km of the site	N/A	-	-	Seeding was not yet done, as site management were in the process of reinstating the areas damaged during the flooding of the site due to the Aldam floodgates that were opened earlier this year.
Fauna				
All animals, birds and reptiles protected on site.	5	-	Compliant	-
Excavations daily monitored for trapped fauna	5	-	Compliant	-
	Air	Quality and Nois	e (EMP PG: 5	6, 98, 99):
Dust monitoring plan implemented	5	-	Compliant	Fallout dust is monitored monthly, and the results have thus far all been compliant with the air quality standards.
Dust suppression implemented	5	-	Compliant	When needed.
Speed on access road limited to 40 km/h	5	-	Compliant	-
Mining equipment serviced regularly to ensure noise emissions are minimized	5	-	Compliant	Although servicing doesn't take place on site, the equipment is still compliant.
No load music permitted on site	5	-	Compliant	-



DESCRIPTION	COMPLIANCE SCORE	NON- COMPLIANCE SCORE	STATUS	COMMENTS
Residents on the property and surrounding areas informed if any unusual noise activities are planned	N/A	-	-	Not yet applicable.
		Archaeological a	nd Cultural In	iterest
Archaeological and/or cultural remnants protected.	N/A	-	-	No archaeological remains were identified on site yet.
	Wate	r Resource and S	torm Water N	anagement
Maintenance of low flows and drought flows attained.	N/A	-	-	 Currently mining activities have not impact on low/drought flows; and The health of this reach of the river is maintained with no impact on local and downstream biodiversity dependent on these low flows.
Monitoring of Water Use from Borehole	5	-	Compliant	Water use from the borehole is monitored daily and records are kept of water use per month.
Monitoring of Water Use from Sand River	N/A	-	-	No water is abstracted from the Sand River.
 Settling Ponds/Waste Water Dams: Constructed outside of the watercourse; Above the 1:100m floodline or Riparian habitat; Further than a 500m radius from a wetland; and Further than a 500m radius from a borehole 	N/A	-	-	The site does not have any settling ponds.
Monitoring of quantity of water stored within the water storage feature (settling pond/waste water dam	N/A	-	-	Currently there are no storage of water within the mining site (settling ponds or waste water dams are not present within the mining area).
Storm water Management Plan implemented on site	5	-	Compliant	-
Storm water diverted around the mining area and access roads to prevent erosion	5	-	Compliant	 Storm water have been diverted successfully around the stockpiling area. These areas are furthermore regularly monitored, and any new erosion are remediated.
Damming up of water in the mining area prevented	1	1	No mitigation	Some damming does occur on site due to the ample rains received in the



DESCRIPTION	COMPLIANCE SCORE	NON- COMPLIANCE SCORE	STATUS	COMMENTS
			needed	area (earlier this year), and the flooding of the banks of the river upon the opening of the Aldam floodgates. The water will remain on site until it has evaporated.
Mining conducted in accordance with the Best Practice Guidelines for small scale mining	5	-	Compliant	-
Areas with erosion reinstated	5	-	Ongoing	The damaged areas that occurred during the flooding of the site was
Low berm located at the edge, between the mining area and lower zone of the river, vegetated, maintained, and monitored for weeds and erosion	5	-	Compliant	repaired and the berm was reinstated between the mining area and the river.
Classes and Resource Quality Objectives of	of Water Resour		nts of the Mid o. 36 of 1998)	Idle Vaal in terms of Sectin 13(1)(A) and (B) of the National Water
Water Quality Monitoring: maintenance of prescribed ecological category (3 monthly analysis)	5	-	Compliant	The results of the water quality samples that were submitted to iWater was received and is discussed under the General Report section.
 Biotic Monitoring: Diatom Monitoring Maintenance of prescribed ecological category Bi-Annual Analysis 	5	-	Compliant	Diatom samples (summer sampling period) have been taken and the results are discussed under the General Report section.
 Biotic Monitoring: Macro Invertebrates Maintenance of prescribed ecological category Annual Analysis 	5	-	Compliant	The results obtained from the SASS5 and MIRAI (Macro Invertebrate Assessment Index) assessment indicated that the study area is Largely Modified (D) due to upstream impacts. See General Report.
 Biotic Monitoring: Ichthyological Monitoring Maintenance of prescribed ecological category Annual Analysis 	5	-	Compliant	The results obtained from the Fish sampling and FRAI (Fish Response Assessment Index) assessment also indicated the study area to be Largely Modified (D) due to upstream impacts. See General Report.
Biotic Monitoring: Riparian and Instream Habitat » Maintenance of prescribed ecological	5	-	Compliant	IHAI (Integrated Habitat Assessment Index) assessment also confirmed the study area to be Largely Modified (D) due to upstream impacts.



DESCRIPTION	COMPLIANCE SCORE	NON- COMPLIANCE SCORE	STATUS	COMMENTS
category » Annual Analysis				
		Visual	Exposure	
Is the contractor implementing good visual and housekeeping standards	5	-	Compliant	The mining area is neat and tidy with a good visual appearance
All activities occurring within the approved footprint (authorised 4.8 ha)	5	-	Compliant	The mining activities are within the approved footprint.
 Implementation of acceptable (authorised) strip mining methodology: » Grade off and storage of topsoil (30cm); » Mining of strip – 20m wide x 200m long and not deeper than 4m 	4	1	No mitigation needed	Although progressive rehabilitation does take place on site, strip mining was found to be impractical as the mining of sand is required along cascading benches. Site management does however rehabilitate the mined areas when applicable.
 Mining strips neatly sloped and landscaped: » Upper and lower zone: Slope (slope < 35°) and bench (width > 4m) technique. » Marginal zone: Slope may not be steeper than 20° 	5	-	Compliant	At the time of the inspection, site management was in the process of shaping the mined benches.
Additional stabilisation of soil (e.g. use of geotextiles).	N/A	-	-	Not yet applicable.
		Hazardous Che	mical Manage	ment
Hazardous material stored within a bunded area (110% capacity)	5	-	Compliant	Waste bins containing hazardous waste are stored in a bunded area with impermeable surface.
Fuel and oil spill managed	5	-	Compliant	No spills were noted at the time of the inspection.
Drip trays present when refuelling is done outside the service bay	TBC	-	-	No refuelling was done at the time of the inspection.
Mining equipment mechanically sound without visible oil leaks	5	-	Compliant	This appeared to be the case as the time of the inspection.



DESCRIPTION	COMPLIANCE SCORE	NON- COMPLIANCE SCORE	STATUS	COMMENTS			
Waste Management							
Site free of day-to-day litter	5	-	Compliant	-			
Hazardous and general waste stored separately	5	-	Compliant	-			
The amount of waste generated monitored	5	-	Compliant	-			
General waste dumped at a recognised landfill site	5	-	Compliant	-			
Hazardous waste removed by a registered waste handling contractor	5	-	Compliant	The hazardous waste of the site is transported to the Louterbronnen Quarry (Blazecor) from where it is removed by Oilkol. The proof of removal is kept at the Blazecor offices.			
No waste stockpile area allowed outside the boundaries of the mining area	5	-	Compliant	-			
Suitable covered receptacles available at all times and conveniently placed for the disposal of waste	5	-	Compliant	-			
Integrated waste management approach implemented on site	5	-	Compliant	Where applicable.			
		Potable Water an	d Ablution Fa	cilities			
Ablution facilities available on site more than 200 m from a watercourse	m a watercourse addressed (±160 m). DWS is aware of this, and the operation of the septic tank w		The ablution facilities are within 200 m of the river, but more than 100 m $(\pm 160 \text{ m})$. DWS is aware of this, and the operation of the septic tank was included in the pending water use licence application.				
Potable water available on site for use of workers	5	-	Compliant	-			
Effluent water from the camp washing facility disposed of in a French drain, situated more than 200m from a watercourse	1	1	Being addressed	See earlier comment regarding the septic tank. Approval is awaited from DWS.			
Fire Management							
Firefighting equipment available on-site	5	-	Compliant	-			
No open fires at mining site allowed	5	-	Compliant	-			
		Mine and Equip	ment Manage	ement			
Mining area demarcated with visible beacons	5	-	Compliant	-			



DESCRIPTION	COMPLIANCE SCORE	NON- COMPLIANCE SCORE	STATUS	COMMENTS
Mine operational within hours as stipulated in the EMPR (6:00 – 18:00, Monday – Saturday, excl. public holidays)	5	-	Compliant	-
A public complaints register maintained on site	5	-	Compliant	-
Incident register maintained on site	5	-	Compliant	-
Emergency preparedness plan implemented on site	5	-	Being addressed	The Emergency Preparedness Plan of the site is being updated to comply with the EA as mentioned in the previous report.
	Access	Roads, Vehicle a	nd Transport	ing of Material
Access road maintained	5	-	Compliant	-
Movement of project related vehicles and machinery restricted to the approved mining area	5	-	Compliant	-
Vehicle repairs only conducted at the off-site workshop	5	-	Compliant	-
Speed limit of 30km/h enforced within the mining area	5	-	Compliant	-
Storm water diverted around the access roads to prevent erosion	5	-	Compliant	Where applicable.
		Employee and S	Safety Manage	ement
Workers inducted and informed of EMP conditions	5	-	Compliant	Workers are inducted as they join the team.
No camping allowed on the mining area	5	-	Compliant	-
Workers provided with PPE	5	-	Compliant	-
Appropriate notification signage erected at the mining site, warning the public about the hazard around the mining site and presence of heavy vehicles and machinery	5	-	Compliant	-
Weather proof, durable, legible notices displayed at the entrance to the site.	5	-	Compliant	-



DESCRIPTION	COMPLIANCE SCORE	NON- COMPLIANCE SCORE	STATUS	COMMENTS
Effective access control to prevent unauthorised entry.	5	-	Compliant	-
Mining area fenced off with lockable gates	5	-	Compliant	-
Hauling routes clearly marked with appropriate signalling.	5	-	Compliant	-



<u>COMMENTS OR COMPLAINTS RECEIVED FROM I&AP'S</u> (APPENDIX 7 SUB-REGULATION 3(G) & (J)):

No written comments or complaints has been received from any of the surrounding I&AP's.

AUDITING OF EMP AND REPORTING THEREOF (REGULATION 34):

Date of previous	
EAR/EPA:	May 2021
Proof of submission	
of previous	The EPA was submitted to the DMRE on 17 June 2021.
EAR/EPA to DMRE	
available:	
EAR/EPA compiled	
by independent	Greenmined Environmental (Pty) Ltd compiled the EPA.
person with	
environmental	
auditing expertise:	
Potential and	
registered I&AP's	No registered I&AP's exist that needs to be notified of the document. The
notified within 7	EPA is however available on the Greenmined website that is a publicly
days of the	accessible website.
submission date,	
and report available	
on publicly	
accessible website	

GENERAL REPORT:

Compliance of the mining area with the approved EMPR was reviewed during the site assessment. The mining area recorded a compliance score of 96% for the audit period.

Mining continues at the eastern bench of the site. Work takes place around the rainwater that pooled in the largest pit as site management awaits the evaporation of the water. The berm between the mining area and the river is in place and monitored daily. At the time of the inspection, site management was also in the process of shaping some of the mined areas in preparation for rehabilitation. As mentioned earlier, the weeds/invader plants that were reported on previously was removed from site.

Water Quality:

As mentioned earlier, the water quality report (from iWater) was received. Two water samples were taken, one upstream of the sand mine (GPS 30.67619°S; 26.63091°E) and the second sample downstream from the sand



mine (GPS 30.6711°S; 26.63482°E). The results showed that the heterotrophic plate count, total coliforms, faecal coliforms, and *E. coli* all exceeds the recommended limits for human consumption as set by the SANS 241:2015 guidelines for drinking water. The water can therefore not be used for human consumption, and should not be used for irrigation or abstracted without complying with the appropriate regulations. Most of the chemical parameters fall within the recommended limits set by SANS241:2015. The higher turbidity of the water was ascribed to the higher rainfall and faster flow in the river. The water is considered as hard; although this does not have any health effects, the high SAR value makes the water unsuitable for irrigation. The low ammonia and nitrate levels suggest that there is no long-term raw sewage influx into the water source, while the low TPH values indicate that there is no hydrocarbon spillage. The water quality testing will be quarterly repeated.

Aquatic Assessment:

The results of the aquatic study (excluding the diatoms) were received and the report concluded as follows:

The aquatic ecosystem within the surrounding area of the Sand Mine was assessed as being largely modified (D) in relation to the habitat integrity, macro-invertebrate as well as for the fish assessment, after the current survey (March). The majority of the impacts on this system were associated with agriculture, existing sand mines and instream habitat changes. The physical water quality results during the survey indicated that the water quality was generally good at all the sites (three sampling points). The main sources for the absence of the expected fish species and macro-invertebrates at all the sites assessed, were from the absence of suitable habitat due to siltation, agriculture and general anthropogenic activities. The rest of the report advises on the mitigation measure to be implemented should the proposed mining right be granted over the area.

The results of the diatom study indicated that the sample sites (2) are characterised by poor biological water quality. While elevated nutrient and organic loads impact on the sample sites, these variables decrease at the downstream site, further to this high salinity concentration is the main impact on both sample sites. The water results showed that the quality of the water is poor and highly impact on by upstream activities.

RELEVANT DOCUMENTATION	PRESENT ON SITE	COMMENTS
Mining Permit	Yes	Renewal added.
Approved EMPR	Yes	-
EA	Yes	-
Mine Plan	Yes	-
Financial Provision Calculation (2022)	Yes	-
EPA (2021)	Yes	-
Water use licence	Yes	-
Waste register and Permits for waste	Yes	-
removal		
Incidents register	Yes	-
Complaints register	Yes	-
Proof of environmental awareness	Yes	-
training		
MSDS's	Yes	-
Appointment of an on-site ECO	Yes	-
Emergency Preparedness Plan	Yes	Being updated.
Landscape Maintenance Plan	Yes	-
Wetland Monitoring Plan	Yes	-

DOCUMENT CHECKLIST:



Wetland Rehabilitation Plan	Yes	-	
Plant Species Plan	Yes	-	
Storm Water Management Plan	Yes	-	

MATTERS TO BE ADDRESSED ON SITE:

• Update the Emergency Response Plan.

ABILITY OF EMP TO ADEQUATELY MANAGE OR MITIGATE ENVIRONMENTAL IMPACTS (APPENDIX 7 SUB-REGULATION 3(E):

The approved EMPR and EA of the mine adequately manage/mitigate the environmental impacts on site, and no need was identified to amend the said documents.

FINANCIAL PROVISION:

The annual review of the financial provision amount for the rehabilitation of the mining area was done in January 2022 and submitted with the mining permit renewal application. The permit holder has a rehabilitation amount of R 383 306.46 lodged with the DMRE. The 2022 financial provision required to rehabilitate the mining area in accordance with the Guideline Document for the Evaluation of the Quantum of Closure-related Financial Provision by a Mine and as prescribed in terms of Regulation 54 (1) is R 228 279.02. The 2022 financial provision does not exceed the value of rehabilitation amount in place at the DMRE, and the permit holder therefore did not have to provide a shortfall.

ECO SIGNATURE:

NAME:	SIGNATURE:	DATE:
Christine Fouche	Jauch	08 June 20222



PHOTOGRAPHS:

















