ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, the environmental impact statement summarises the impact that the proposed mining activity may have on the environment after the management and mitigation of impacts have been considered, with specific reference to types of impact, duration of impacts, likelihood of potential impacts occurring and the significance of impacts.

ASPECT	POTENTIAL IMPACT	LIKELIHOOD	SIGNIFICANCE (WITH MITIGATION)
SITE ESTABLISHMENT AND CONSTRUCTION PHASE			
Visual Impact Assesment	1. Altered landscape and sense of place during construction. 2. Visibility of the facility to residents during construction. 3. Dust and construction impact during construction. 4. Impact on local infrastructure and traffic during construction.	1. Definite 2. Low Possibility 3. Low Possibility 4. Low Possibility	1. Medium 2. Medium 3. Medium 4. Low-Medium
Air Quality and Noise Impact Assessment	1. Potential impact of the proposed mining and materials handling activities on ambient air quality in terms of the daily NAAQS for PM_{10} and $PM_{2.5}$. 2. Potential impact of the proposed mining and materials handling activities on ambient air quality in terms of the annual NAAQS for PM_{10} and $PM_{2.5}$. 3. Noise nuisance caused by site establishment / construction phase.	1. Possible 2. Low Possibility 3. Low Possibility	1. Low-Medium (Scenario 2) 2. Low (Scenario 2) 3. Low
Geology, soils and agricultural sensitivity	1. Loss of land capability 2. Soil erosion 3. Soil compaction 4. Soil contamination	1. Possible 2. Low Possibility 3. Possible 4. Low Possibility	1. Low 2. Low 3. Low 4. Low-Medium
Geohydrology Impact Assessment	1. Generation of the stockpile area and WRD affecting the groundwater recharge and/or quality.	1. Low Possibility	1. Low

ASPECT	POTENTIAL IMPACT	LIKELIHOOD	SIGNIFICANCE (WITH MITIGATION)
SITE ESTABLISHMENT AND CONSTRUCTION PHASE			
Hydrology Impact Assessment	1. Increased risk of erosion resulting in increased sediments entering the watercourses resulting in changes to water quality. 2. Increase in hard standing areas, resulting in potentially higher surface flow entering the nearby watercourses. 3. As a result vegetation clearing, removal of topsoil for opencast mining activities and the development of roads, it is anticipated that soils would be agitated and disperse. 4. During the construction period it is anticipated that domestic waste will be generated by staff and contractors. The potential of domestic waste entering the watercourses exists, affecting water quality. 5. During the construction period it is anticipated that hazardous chemicals and/or materials may be stored and utilized on site. These could pose a risk to the surface water resources. 6. The current project footprint is located within the vicinity of existing drainage lines. As such, stream diversions may be required that could impact the riverine habitats.	1. Low Possibilty 2. Possible 3. Definite 4. Low Possibility 5. Low Possibility 6. Low Possibilty	1. Medium 2. Medium 3. Low-Medium 4. Low 5. Low 6. Low-Medium
Freshwater Ecosystems Impact Assessment	1. Potential poor planning of stormwater management and pollution control for the project during the pre-construction phase affecting the EDLs. 2. Erection and fencing of mining-related infrastructure (stockpile area) within and adjacent to (within the GN 4167 100m ZoR) of the northern EDL, in preparation for mining operations. 3. Clearing of vegetation and earthworks associated with the dirty water channel and sump within 48 m ecological buffer and 100	1. Low Possibility 2. Unlikely 3. Definite 4. Definite 5. Definite 6. Definite	1. Low-Medium 2. Impact Avoided 3. Low 4. Low-Medium 5. Low-Medium 6. Low-Medium

ASPECT	POTENTIAL IMPACT	LIKELIHOOD	SIGNIFICANCE (WITH MITIGATION)
SITE ESTABLISHMENT AND CONSTRUCTION PHASE			
	m zone of regulation (DWS) of the southern EDL. 4. Clearing of vegetation and topsoil stripping in the Pit 2 footprint area (adjacent to and within the 100 m zone of regulation (DWS) of the southern EDL) as the first step of open cast mining. 5. Creation of the stockpile within the immediate catchment of the northern EDL. 6. Upgrading of existing informal roads (if required) which bisect the EDLs and are located within the 100 m zone of regulation (DWS).		
Terrestrial Biodiversity, Conservation Area, Groundcover and Fauna Impact Assessment.	1. Potential impact on the Kuruman Mountain Bushveld habitat and diversity during the pre-construction and planning phase. 2. Potential impact on the Olifantshoek Plains Thornveld habitat and diversity during the pre-construction and planning phase. 3. Potential impact on the Freshwater Habitat: EDL and diversity during the pre-construction and planning phase. 4. Potential impact on the Freshwater Habitat: PFP and diversity during the pre-construction and planning phase. 5. Potential impact on the ESA during the pre-construction and planning phase. 6. Potential impact on the Kuruman Mountain Bushveld faunal habitat, diversity, and SCC during the planning phase. 7. Potential impact on the Olifantshoek Plain Thornveld faunal habitat, diversity, and SCC during the planning phase. 8. Potential impact on the Freshwater Habitat: EDL & PFP faunal habitat, diversity, and SCC during the planning phase.	1. Definite 2. Definite 3. Possible 4. Low Possibility 5. Low Possibility 6. Low Possibility 7. Low Possibility 8. Low Possibility 9. Low Possibility	1. Low-Medium 2. Low-Medium 3. Low-Medium 4. Low 5. Low 6. Low-Medium 7. Low-Medium 8. Low-Medium 9. Low

ASPECT	POTENTIAL IMPACT	LIKELIHOOD	SIGNIFICANCE (WITH MITIGATION)
SITE ESTABLISHMENT AND CONSTRUCTION PHASE			
	9. Potential infestation of the footprint area by invasive plant species.		
Heritage, Culture, and Palaeontological Impact Assessment	1. Potential physical disturbance of the low-density scatters and exploration trenches and/or its context. 2. Potential physical disturbance of the burial sites and/or its context. 3. Potential physical disturbance of the historical farmhouse. 4. Potential impact to fossil heritage.	1. Low Possibility 2. Low Possibility 3. Low Possibility 4. Low Possibility	1. Low-Medium 2. Low-Medium 3. Low-Medium 4. Low
Socio-economic Impact Assessment	1. Influx of jobseekers and change in population. 2. Safety and security impacts. 3. Increased pressure on local services/resources. 4. Nuisance impacts (noise & dust).	1. Possible 2. Low Possibility 3. Low Possibility 4. Low Possibility	1. Medium 2. Low-Medium 3. Low-Medium 4. Medium
Waste Management	1. Contaminated run-off/stormwater from waste rock dump (WRD) into unnamed stream. 2. Leaching of contaminants from the WRD into groundwater. 3. Ingestion/use of contaminated groundwater (that originated from the WRD). 4. Ingestion/use of contaminated surface water (that originated from the WRD).	1. Low Possibility 2. Low Possibility 3. Low Possibility 4. Low Possibility	1. Low 2. Low 3. Low 4. Low

ASPECT	POTENTIAL IMPACT	LIKELIHOOD	SIGNIFICANCE (WITH MITIGATION)
OPERATIONAL PHASE			
Visual Impact Assesment	1. Altered landscape and sense of place during operation. 2. Visibility of the facility to residents during operation. 3. Potential visual impact of operational, safety and security lighting during operation.	1. Definite 2. Definite 3. Possible	1. Medium 2. Medium 3. Medium
Air Quality and Noise Impact Assessment	1. Potential impact of the proposed mining and materials handling activities on ambient air quality in terms of the daily NAAQS for PM_{10} and $PM_{2.5}$. 2. Potential impact of the proposed mining and materials handling activities on ambient air quality in terms of the annual NAAQS for PM_{10} and $PM_{2.5}$. 3. Noise nuisance caused by mining machinery and operations (excluding blasting). 4. Potential blasting noise and vibration nuisance to neighbouring properties.	1. Possible 2. Low Possibility 3. Low Possibility 4. Possible	1. Low-Medium (Scenario 2) 2. Low (Scenario 2) 3. Low-Medium 4. Low-Medium
Geology, soils and agricultural sensitivity	1. Loss of land capability 2. Soil erosion 3. Soil compaction 4. Soil contamination 5. Increased fire risk	1. Possible 2. Low Possibility 3. Low Possibility 4. Low Possibility 5. Low Possibility	1. Low 2. Low-Medium 3. Low 4. Low-Medium 5. Low
Geohydrology Impact Assessment	1. Potential impact on the water availability in some of the user boreholes to the north. 2. Waste water from ablutions potentially impacting the groundwater quality.	1. Definite 2. Low Possibility	1. Low 2. Low
Hydrology Impact Assessment	1. Increased earthworks will result in sediment mobility and increased sediments that may	1. Low Possibility 2. Low Possibility	1. Low-Medium 2. Low

ASPECT	POTENTIAL IMPACT	LIKELIHOOD	SIGNIFICANCE (WITH MITIGATION)
OPERATIONAL PHASE			
	enter the watercourses and cause changes to water quality. 2. Potential for dirty water to enter the surrounding watercourses as a result of operations. 3. Potential for domestic waste to enter the surrounding watercourses as a result of operations. 4. Potential for hazardous chemicals and/or materials to enter the surrounding watercourses as a result of operations. 5. Changes to the surface vegetation are anticipated, as such, the natural hydrological flow regime would be impacted upon. It is anticipated that additional hard standing areas will be developed, resulting in increased flows to the watercourses.	3. Low Possibility 4. Low Possibility 5. Definite	3. Low 4. Low 5. Low-Medium
Freshwater Ecosystems Impact Assessment	1. Undertaking of open cast mining (including blasting) adjacent to and within the 100 m zone of regulation of the southern EDL (Pit 2). 2. Operational reshaping of the Phase 2 open cast pit and associated rehabilitation (topsoil restoration and revegetation) adjacent to and within the 100 m zone of regulation (ZoR) of the southern EDL. 3. Transport of product from Pit 2 to the primary beneficiation plant (offsite) via the upgraded road which bisects the southern EDL and is located within the associated 100 m ZoR. 4. Operation of the portion of the Pit 2 dirty water channel and sump within the 100 m ZoR of the southern EDL. 5. Operation and maintenance of the upgraded road crossings within the EDLs.	1. Definite 2. Definite 3. Definite 4. Definite 5. Definite	1. Medium 2. Low 3. Low 4. Low 5. Low

ASPECT	POTENTIAL IMPACT	LIKELIHOOD	SIGNIFICANCE (WITH MITIGATION)
OPERATIONAL PHASE			
Terrestrial Biodiversity, Conservation Area, Groundcover and Fauna Impact Assessment.	1. Potential impact on the Kuruman Mountain Bushveld habitat and diversity during the mining phase. 2. Potential impact on the Olifantshoek Plains Thornveld habitat and diversity during the mining phase. 3. Potential impact on the Freshwater Habitat: EDL and diversity during the mining phase. 4. Potential impact on the Freshwater Habitat: PFP and diversity during the mining phase. 5. Potential impact on the ESA during the mining phase. 6. Potential impact on the Kuruman Mountain Bushveld faunal habitat and diversity during the mining phase. 7. Potential impact on the Olifantshoek Plain Thornveld faunal habitat and diversity during the mining phase. 8. Potential impact on the Freshwater Habitat: EDL & PFP faunal habitat and diversity during the mining phase. 9. Potential impact on the Kuruman Mountain Bushveld faunal SCC during the mining phase. 10. Potential impact on the Olifantshoek Plain Thornveld faunal SCC during the mining phase. 11. Potential impact on the Freshwater Habitat: EDL & PFP faunal SCC during the mining phase. 12. Potential infestation of the mining footprint with invasive plant species.	1. Definite 2. Definite 3. Definite 4. Low Possibility 5. Low Possibility 6. Possible 7. Possible 8. Low Possibility 9. Low Possibility 10. Low Possibility 11. Low Possibility 12. Low Possibility	1. Medium-High 2. Medium 3. Low-Medium 4. Medium 5. Medium 6. Medium-High 7. Medium-High 8. Medium-High 9. Medium-High 10. Medium-High 11. Medium-High 12. Low

ASPECT	POTENTIAL IMPACT	LIKELIHOOD	SIGNIFICANCE (WITH MITIGATION)
OPERATIONAL PHASE			
Heritage, Culture, and Palaeontological Impact Assessment	1. Potential physical disturbance of the low-density scatters and exploration trenches and/or its context. 2. Potential physical disturbance of the burial sites and/or its context. 3. Potential physical disturbance of the historical farmhouse. 4. Potential impact to fossil heritage.	1. Low Possibility 2. Low Possibility 3. Low Possibility 4. Low Possibility	1. Low-Medium 2. Low-Medium 3. Low-Medium 4. Low
Socio-economic Impact Assessment	1. Nuisance impacts (noise & dust).	1. Low Possibility	1. Low
Health Impact Assessment	1. Air quality impact on health: all-cause (natural) mortality. 2. Air quality impact on health: cardiovascular hospital admissions. 3. Air quality impact on health: chronic bronchitis. 4. Air quality impact on health: acute bronchitis in children. 5. Air quality impact on health: lung cancer in adults. 6. Water quality impact on health.	1. Low Possibility 2. Low Possibility 3. Low Possibility 4. Low Possibility 5. Low Possibility 6. Low Possibility	1. Low (Scenario 1 & 2) 2. Low (Scenario 1 & 2) 3. Low (Scenario 2) 4. Low (Scenario 2) 5. Low (Scenario 2) 6. Low
Road Network and Traffic Impact Assessment	1. Traffic congestion on the R385 due to mining activities. 2. Road wear and tear of the R385 due to mining activities. 3. Safety concerns and accidents on R385 due to mining activities. 4. Increased air pollution due to increased traffic on the R385.	1. Low Possibility 2. Low Possibility 3. Low Possibility 4. Possible 5. Possible 6. Low Possibility 7. Low Possibility	1. Low-Medium 2. Low-Medium 3. Low-Medium 4. Low-Medium 5. Low-Medium 6. Low-Medium 7. Low-Medium

ASPECT	POTENTIAL IMPACT	LIKELIHOOD	SIGNIFICANCE (WITH MITIGATION)
OPERATIONAL PHASE			
	5. Increased noise pollution due to increased traffic on the R385. 6. Community disruption due to increased traffic on the R385. 7. Wildlife disruption due to increased traffic on the R385.		
Waste Management	1. Contaminated run-off/stormwater from waste rock dump (WRD) into unnamed stream. 2. Leaching of contaminants from the WRD into groundwater. 3. Ingestion/use of contaminated groundwater (that originated from the WRD). 4. Ingestion/use of contaminated surface water (that originated from the WRD).	1. Low Possibility 2. Low Possibility 3. Low Possibility 4. Low Possibility	1. Low 2. Low 3. Low 4. Low

ASPECT	POTENTIAL IMPACT	LIKELIHOOD	SIGNIFICANCE (WITH MITIGATION)
CUMULATIVE IMPACTS			
Visual Impact Assesment	1. Overall visual impact of the proposed project considered in isolation. 2. Overall visual impact of the proposed project and other projects within the area.	1. Definite 2. Definite	1. Medium 2. Medium-High
Socio-economic Impact Assessment	1. Negative impacts and change to the local economy with an in-migration of labourers, businesses, and jobseekers to the area (proposed project in isolation). 2. Negative impacts and change to the local economy with an in-migration of labourers, businesses, and jobseekers to the area (proposed project and other projects in the area).	1. Low Possibility 2. Low Possibility	1. Medium 2. Medium-High

ASPECT	POTENTIAL IMPACT	LIKELIHOOD	SIGNIFICANCE (WITH MITIGATION)
DECOMMISSIONING PHASE			
Visual Impact Assesment	1. Landscape character and visual amenity during decommissioning phase.	1. Definite	1. Medium
Air Quality and Noise Impact Assessment	1. Potential impact of the proposed mining and materials handling activities on ambient air quality in terms of the daily NAAQS for PM_{10} and $PM_{2.5}$. 2. Potential impact of the proposed mining and materials handling activities on ambient air quality in terms of the annual NAAQS for PM_{10} and $PM_{2.5}$. 3. Noise nuisance caused during the decommissioning phase.	1. Low Possibility 2. Low Possibility 3. Low Possibility	1. Medium (Scenario 1) Low-Medium (Scenario 2) 2. Medium (Scenario 1) Low (Scenario 2) 3. Low
Geology, soils and agricultural sensitivity	1. Loss of land capability 2. Soil erosion 3. Soil compaction 4. Soil contamination	1. Possible 2. Low Possibility 3. Low Possibility 4. Low Possibility	1. Low 2. Low-Medium 3. Low 4. Low
Geohydrology Impact Assessment	1. Potential impact on the water availability in some of the user boreholes to the north.	1. Definite	1. Low
Freshwater Ecosystems Impact Assessment	1. Ongoing (long term) rehabilitation of the mining footprint areas within the 100 m ZoR of the EDLs. 2. Post-closure management activities.	1. Definite 2. Definite	1. Low 2. Low
Terrestrial Biodiversity, Conservation Area, Groundcover and Fauna Impact Assessment.	1. Potential impact on the Kuruman Mountain Bushveld habitat and diversity during the decommissioning phase. 2. Potential impact on the Olifantshoek Plains Thornveld habitat and diversity during the decommissioning phase. 3. Potential impact on the Freshwater Habitat: EDL and diversity during the decommissioning phase.	1. Low Possibility 2. Low Possibility 3. Low Possibility 4. Low Possibility 5. Low Possibility 6. Low Possibility 7. Low Possibility	1. Low-Medium 2. Low-Medium 3. Low 4. Low-Medium 5. Low 6. Low-Medium 7. Low-Medium

ASPECT	POTENTIAL IMPACT	LIKELIHOOD	SIGNIFICANCE (WITH MITIGATION)
DECOMMISSIONING PHASE			
	4. Potential impact on the Freshwater Habitat: PFP and diversity during the decommissioning phase. 5. Potential impact on the ESA during the decommissioning phase. 6. Potential impact on the Kuruman Mountain Bushveld faunal habitat and diversity during the decommissioning phase. 7. Potential impact on the Olifantshoek Plain Thornveld faunal habitat and diversity during the decommissioning phase. 8. Potential impact on the Freshwater Habitat: EDL & PFP faunal habitat and diversity during the decommissioning phase. 9. Potential impact on the Kuruman Mountain Bushveld faunal SCC during the decommissioning phase. 10. Potential impact on the Olifantshoek Plain Thornveld faunal SCC during the decommissioning phase. 11. Potential impact on the Freshwater Habitat: EDL & PFP faunal SCC during the decommissioning phase. 12. Potential infestation of the rehabilitated areas with invasive plant species.	8. Low Possibility 9. Low Possibility 10. Low Possibility 11. Low Possibility 12. Low Possibility	8. Low-Medium 9. Low-Medium 10. Low-Medium 11. Low-Medium 12. Low
Socio-economic Impact Assessment	1. Loss of employment opportunities and economic changes. 2. Infrastructure decommissioning and waste management.	1. Definite 2. Definite	1. Medium 2. Low-Medium
Waste Managment	1. Contaminated run-off/stormwater from waste rock dump (WRD) into unnamed stream. 2. Leaching of contaminants from the WRD into groundwater.	1. Low Possibility 2. Low Possibility 3. Low Possibility 4. Low Possibility	1. Low 2. Low 3. Low 4. Low

ASPECT	POTENTIAL IMPACT	LIKELIHOOD	SIGNIFICANCE (WITH MITIGATION)
DECOMMISSIONING PHASE			
	3. Ingestion/use of contaminated groundwater (that originated from the WRD). 4. Ingestion/use of contaminated surface water (that originated from the WRD).		
Refer to *Part A(1)(g)(vii) Methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks – Methodology that was used to assess the latent risk*			
Potential Residual and/or Latent Environmental Risk	1. Veld fires affecting sensitive areas such as the nursery and/or revegetated areas. 2. Possible development of subsided areas after rehabilitation. 3. Potential for crack development after rehabilitation. 4. Insufficient topsoil and subsoil available for rehabilitation. 5. Potential of topsoil being diluted and chemically deficient to be used during rehabilitation. 6. Potential contamination of soils. 7. Potential chemical changes in topsoil and subsoil leading to toxicity. 8. Dust pollution during the decommissioning phase. 9. Potential for wind and water erosion of the denuded areas. 10. Sedimentation of EDL's and PFPs due to water erosion from denuded areas. 11. Potential of surface water pollution flowing into the mining area. 12. Potential groundwater depletion and/or pollution due to mining activities. 13. Invasive plant species establishing in the rehabilitated areas.	1. Low Possibility 2. Possible 3. Possible 4. Low Possibility 5. Low Possibility 6. Low Possibility 7. Low Possibility 8. Low Possibility 9. Low Possibility 10. Low Possibility 11. Low Possibility 12. Possible 13. Low Possibility 14. Low Possibility 15. Low Possibility 16. Low Possibility 17. Low Possibility 18. Low Possibility 19. Low Possibility	1. Uncertain Risk 2. Uncertain Risk 3. Uncertain Risk 4. Potential Significant 5. Uncertain Risk 6. Insignificant Risk 7. Insignificant Risk 8. Uncertain Risk 9. Uncertain Risk 10. Uncertain Risk 11. Insignificant Risk 12. Potential Significant 13. Insignificant Risk 14. Insignificant Risk 15. Insignificant Risk 16. Insignificant Risk 17. Insignificant Risk 18. Uncertain Risk 19. Insignificant Risk

ASPECT	POTENTIAL IMPACT	LIKELIHOOD	SIGNIFICANCE (WITH MITIGATION)
DECOMMISSIONING PHASE			
	14. Potential failure of the nursery that may threaten the rehabilitation process. 15. Potential impact of livestock browsing/grazing on revegetated areas. 16. Potential failure of revegetation of the mined areas. 17. Potential hunting, trapping, trafficking and plant harvesting. 18. Potential degradation of the surrounding areas. 19. Potential failure of rehabilitation.		