SUMMARY OF HIGH IMPACTS

ACTIVITY	POTENTIAL IMPACT	SIG. WITHOUT MITIGATION	SIG. WITH MITIGATION
Construction Phase			
Social Impacts			
Pre-mining activities	Contribution to the gross national product	Moderate (Positive)	High (Positive)
Pre-mining activities	Increase in economic development	Low (Positive)	Moderate (Positive)
Pre-mining activities	Employment opportunities	Very Low (Positive)	Moderate (Positive)
Pre-mining activities	Community investment (SLP)	Moderate (Positive)	High (Positive)
Pre-mining activities	Increased pressure on municipal services	High	Moderate
Pre-mining activities	Intrusive Impacts (dust, noise, visual)	Moderate	Moderate
Pre-mining activities	Community-related health and safety	High	Moderate
Soils, Land Capability, Land Use and Hydropedology			
Temporary Infrastructure Area & PWP	Destruction of the existing Land Capability	High	High
Biodiversity			
Vegetation clearing, construction of infrastructure, excavation, stockpiling and dumping	Loss of habitat and loss and displacement of invertebrate species of conservation concern	High	High

ACTIVITY	POTENTIAL IMPACT	SIG. WITHOUT MITIGATION	SIG. WITH MITIGATION
Open-cast mining	Destruction of key avian habitat -Coastal Lowland Forest	Very High	Moderate
Residue Storage Facilities (RSFs)	Destruction of key avian habitat -Coastal Lowland Forest and wetland	Very High	Moderate
Sandtails areas	Destruction of key avian habitat -Coastal Lowland Forest and grassland/wetland	Very High	Moderate
Open-cast mining and associated infrastructure	Habitat degradation of aquatic avifaunal habitat in the Mlalazi Estuary -Phase 2	High	Moderate
Open-cast mining and associated infrastructure	Habitat degradation of aquatic avifaunal habitat in the Mhlatuze Estuary - Phase 2	High	Moderate
Operational phase			
Social			
Phase 1& 2 mining activities	Preferential employment	Moderate (Positive)	High (Positive)
Phase 1& 2 mining activities	Skill development and training	Low (Positive)	Moderate (Positive)
Phase 1& 2 mining activities	Increased traffic levels	High	Moderate
Phase 1& 2 mining activities	The decline in property value	High	Moderate
Phase 1& 2 mining activities	Access routes	High	Moderate
Visual			
Opencast mining activities (small-scale)	Opencast mining activities (small-scale)	Moderate	Moderate
Opencast mining activities (large-scale)	Opencast mining activities (large-scale) and associated night-time light pollution	Moderate	Moderate

ACTIVITY	POTENTIAL IMPACT	SIG. WITHOUT MITIGATION	SIG. WITH MITIGATION
Phase 2 mining activities	Formation of dust plumes	Moderate	Moderate
Phase 2 mining activities	Haulage by road of waste stream material to Port Durnford for disposal	Moderate	Moderate
Phase 2 mining activities	Presence of visually intrusive PWP complex and infrastructure and associated night-time light pollution	Moderate	Moderate
Phase 2 mining activities	Progressive increase in height and expansion of RSFs and sand tails dumpsites	Moderate	Moderate
Phase 2 mining activities	Permanent alteration of site topography and land cover	High	Moderate
Traffic			
Phase 2 Stage 1 (From 2036)	Additional traffic generated Phase 2 -PWP Port Dunford to CPC Empangeni	Moderate	Moderate
Phase 2 Stage 4 (From 2051)	Additional traffic generated -Phase 2 ROM crossing P537	High	Moderate
Phase 2 Stage 4 (From 2051)	Additional traffic generated -Phase 2 PWP Port Dunford to CPC Empangeni	Moderate	Moderate
Phase 2 Stage 4 (From 2051)	Additional traffic generated Phase 2 -PWP Port Dunford to CPC Empangeni	Moderate	Moderate
Property			
Phase 2 mining activity	Visual Impact Phase 2 2036 to 2069	High	Moderate
Phase 2 mining activity	Atmospheric / Dust Impact Phase 2 2036 to 2069	High	High
Phase 2 mining activity	Cumulative / Sence of place Impact Phase 2 2036 to 2069	Moderate	Moderate
Heritage			
Phase 1& 2 mining activities	Loss of cultural heritage (archaeological and/or historical) sites	Moderate	Moderate

ACTIVITY	POTENTIAL IMPACT	SIG. WITHOUT MITIGATION	SIG. WITH MITIGATION
Palaeontology			
Phase 1& 2 mining activities	Loss of fossil heritage in the Berea Formation (Qb) of the Quaternary	Very High	Moderate
Phase 1& 2 mining activities	Loss of fossil heritage in the Quaternary geological layer	Moderate	Moderate
Soils, Land Capability, Land Use and Hydropedology			
Mining Pits (all Phase 2 Pits, also including the Phase 1 Pit); and Above Surface constructed RSF & Sand Tailings footprints	Destruction of the existing Land Capability	High	High
Mining Pits (extensive / numerous, before being later repurposed)	Loss of soil depth/volume - due to understripping - Mining pits	High	Moderate
Mining Pits (extensive / numerous, before being later repurposed)	Significantly reduced Recharge in the extensive Mining Pit footprints	High	High
Backfilling of mined-out Pits. Including: All Pits (backfilled with Sand Tailings only); and repurposed RSF C (backfilled with Fines, inside internal Sand Tailings walls)	Large temporary (over a long period) increases in recharge and interflow water volumes	High	High
Deposition Above Surface, Outside of mining footprints. Including: RSF 9 (Fines deposited within a Sand Tailings starter wall); and Sand Tailings dumps A-1, A-2, A-3 complex, and 8B (Sand Tailings only)	Large temporary (over a long period) increase in Recharge to groundwater (vertically downward) and Interflow (laterally downslope) water volumes	High	High
PWP (and Temporary Infrastructure Area, if still existing)	Reduced volume of infiltrated water reporting to the base of the previous Pits post-rehabilitation	High	Moderate
Rehabilitation of Above Surface deposited Fines. RSF 9	After Rehabilitation, the Recharge and Interflow components will be reduce	High	High

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Rehabilitation of Above Surface deposited Sand Tailings dumps: A-1, A-2, A-3 complex, and 8B	Recharge and Interflow will be significantly reduced below the sand dumps compared with the pre-mining condition	Very High	High
Mining Pits (extensive / numerous, before being later repurposed)	Loss of soil depth/volume - due to understripping - Above surface	High	Moderate
Rehabilitation of Mining Pits that were backfilled with Sand Tailings only (re-purposed Sand Tailings sites 3, 4, and 5). Includes: All Pits (except repurposed RSF C)	Unacceptable soil erosion due to proposed 1:3 side slopes, and Topsoiling depth	High	Moderate
Rehabilitation of Above Surface deposit. Includes: RSF 9 (Fines were deposited, inside a Sand Tailings starter wall)	Unacceptable soil erosion / depth due to proposed 1:3 side slopes, and Topsoiling with only 30cm of orthic A-horizon Topsoil	High	Moderate
Rehabilitation of Above Surface deposited Sand Tailings Dumps. Includes: A-1, A-2, A-3 complex, and 8B	The excessive height and slope will result in excessive soil erosion, thus also resulting in significant sedimentation of the surrounding area	Very High	High
Ground Water/ Hydrogeology			
Dewatering in mining areas	Lowering of water levels around the mine	Moderate	Moderate
Contamination of groundwater because of deposition of material into RSF C as mining progresses	Deterioration of groundwater quality	Moderate	Moderate
Wetlands			
LOM Opencast pit, RSF, Topsoil and Course Tails Stockpiles, Road Corridors	Wetland habitat loss within the footprint of surface infrastructure, LOM, RSFs, stockpiles. Total of 124 ha to be lost. - Phase 2	Very High	High

ACTIVITY	POTENTIAL IMPACT	SIG. WITHOUT MITIGATION	SIG. WITH MITIGATION
Topsoil and Course Tails Stockpiles, Road Corridors	Wetland habitat degradation through altered geomorphological characteristics (sedimentation & erosion) in downstream wetlands - Phase 2	Moderate	Moderate
Biodiversity: Avifauna, Herpetofauna, Invertebrates, Mammals			
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Open-cast mining and associated infrastructure	Habitat degradation of aquatic avifaunal habitat in the Mhlatuze Estuary - Phase 2	High	Moderate
Vegetation clearing, mining, dumping, stockpiling and construction of infrastructure	Habitat loss	High	High
Open-cast mining and associated infrastructure	Erosion and subsequent siltation of aquatic habitat	Moderate	Moderate
Open-cast mining and associated infrastructure	Edge effects, fragmentation and degradation	High	High
Open-cast mining and associated infrastructure	Direct mortality	Moderate	Moderate
Vegetation clearing, construction of infrastructure, excavation, stockpiling and dumping	Loss of habitat and loss and displacement of invertebrate species of conservation concern	High	High

ACTIVITY	POTENTIAL IMPACT	SIG. WITHOUT MITIGATION	SIG. WITH MITIGATION
Clearing of vegetation and physical mining procedures	Loss of ecological connectivity and subsequent loss of dispersal	High	High
Vegetation clearing and earth works, Vehicle/machinery collisions, Hunting/snaring by construction workers Increased sensory disturbance from dust or noise generation	Loss of mammal species of conservation concern	High	Moderate
Vegetation clearing and earth works	Direct loss and disturbance of natural habitat (Without buffer applied as part of mitigation)	High	Moderate
Vegetation clearing and earth works	Fragmentation of natural habitat	High	Moderate
Vegetation clearing and earth works	Direct loss and disturbance of natural habitat	Very High	High
Job-seeking population and "urbanization"	Illegal utilisation of resources and displacement of invertebrate species of concern	Moderate	Moderate
Vegetation clearing and earth works	Direct loss and disturbance of natural habitat	Very High	High
Vegetation clearing and earth works	Direct loss and disturbance of natural habitat (Without buffer applied as part of mitigation)	High	Moderate
Vegetation clearing and earth works	Fragmentation of natural habitat - Terrestrial Flora and Mammals	High	Moderate
Vegetation clearing and earth works	Loss of mammal species of conservation concern	High	Moderate
Mechanical mining of the run-of-mine (ROM) material and Progressive backfilling and rehabilitation	Changes in water quantity or flow regime	Moderate	Moderate
Closure and Decommissioning			
Social			

ACTIVITY	POTENTIAL IMPACT	SIG. WITHOUT MITIGATION	SIG. WITH MITIGATION
Decommissioning phase	Downscaling and retrenchment	Low	Moderate
Dewatering in mining areas	Recovery of water levels	Moderate	Moderate
Decommissioning and removal of infrastructure Rehabilitation activities including spreading of topsoil and revegetation of disturbed footprints.	Wetland habitat degradation due to erosion, sedimentation, water quality deterioration and spread of AIP	Moderate	Moderate
Radiology			
Commissioning of an RSF, radionuclides contained in the material leach from the TSF to the underlying strata	Leaching and migration of radionuclides from the TSF during the post-closure phase of the Port Dunford Mine	Moderate	Moderate
Social			
	Local Economy	Moderate (Positive)	High (Positive)
Soils, Land Capability, Land Use and Hydropedology			
All Mineral Sand Mines (previous, existing, and proposed) in the immediate Region.	Loss of post-rehabilitation Soil Quality due to the following factors: - loss of soil depth / volume due to understripping / stockpiling / replacement of Topsoils (orthic A-horizon) and Subsoils (most suitable: red apedal, yellow-brown apedal, neocutanic, and E-horizon soils where the E is yellow in the dry state; as well as less suitable types where encountered in other areas); - increased Soil Erosion due to post-mining slopes exceeding 1:7 (8 °) or 1:5 (11.3°) in certain areas (Residue Storage Facilities, and Sand Tailings Dumps), potentially resulting in sedimentation of drainage lines / wetlands / associated indigenous bush areas; - reduced Soil Fertility mostly due to the non-replacement of Topsoil (orthic A-horizon) on the immediate surface during rehabilitation;	Very High	Moderate

ACTIVITY	POTENTIAL IMPACT	SIG. WITHOUT MITIGATION	SIG. WITH MITIGATION
	- increased soil compaction, and; - potential soil pollution.		
All Mineral Sand Mines (previous, existing, and proposed) in the immediate Region.	Reduced post-rehabilitation Land Capability class / potential	Very High	Moderate
All Mineral Sand Mines (previous, existing, and proposed) in the immediate Region.	Reduced post-rehabilitation Land Use	Very High	Moderate
All Mineral Sand Mines (previous, existing, and proposed) in the immediate Region.	Altered post-rehabilitation Hydropedological Soil Types, due to their previous destruction during the course of mining related operations	High	Moderate
All Mineral Sand Mines (previous, existing, and proposed) in the immediate Region.	Loss of post-rehabilitation Soil Quality	Very High	Moderate