Part					IMPACTS												DI	EGREE
March Marc				1	IMPACIS				CONSEQUENCE		PROBABILITY	SIGNIFICANCE (WOM)						LUKEL
The control of the	ACTIVITY	ASPECTS											CONFIDENCE	MANAGEMENT & MITIGATION MEASURES		SIGNIFICANCE (WM)		
March Marc			TYPE	DESCRIPTION	ALIERNATIVE	CUMULATIVE	NATURE										LOSS RESOURCE	REVERSABILITY
Part								()	(5)									
March Marc					Layout 1			Local	Medium-term				Medium		Medium	Low-Medium	Partial	Medium Degree
# A COUNTY OF THE PROPERTY OF			Direct	Water quality	Lovert 2	Yes	Negative	Local	Madium term	Medium High	Definite	Madium	Medium		Medium	Low-Medium	Partial	Medium Degree
Marches Marc										-								-
March Marc			Indirect	Silt	Layout 1	Yes	Negative	Neighbouring	Medium-term	Medium	Highly Likely	Low-Medium	High		Medium	Low	Minimal	High Degree
March Marc					-			Neighbouring	Medium-term		Highly Likely			Settlements, Water and Sanitation (DHSWS), as the proposed project will trigger		Low		High Degree
Part			Direct	Surface water run-off	-	Yes	Negative											
Marchanists	All potivities during the				Layout 2				Medium-term									
March Marc	pre-construction and		Indirect		Layout 1	Yes	Negative	Neighbouring	Incidental	Medium	Possible	Low	High		High	Low	Minimal	High Degree
Part	construction phases.			substances	Layout 2			Neighbouring	Incidental	Medium	Possible	Low	High		High	Low	Minimal	High Degree
Part			6	Disturbance of natural	Layout 1	V		Local	Medium-term	Medium	Definite	Medium	High		Medium	Low-Medium	Partial	Medium Degree
Part Control			Direct		Layout 2	Yes	Negative	Local	Medium-term	Medium	Definite	Medium	High		Medium	Low-Medium	Partial	Medium Degree
Part				Disturbance/pollution of	Layout 1			Local	Medium-term	Medium	Highly Likely	Medium	High	and monitored.	High	Low-Medium	Minimal	High Degree
Company Comp			Direct		Layout 2	Yes	Negative	Local	Medium-term	Medium	Highly Likely	Medium	High		High	Low-Medium	Minimal	High Degree
March Marc			Discost	Disturbance of aquatic	Layout 1	Vee	Manatina	Local	Medium-term	Medium	Highly Likely	Medium	High	Enhance wetland integrity.	High	Low-Medium	Minimal	High Degree
## AF GUALTY ## AF GUALTY ## AF GUALTY Final			Direct	ecological systems	Layout 2	res	Negative	Local	Medium-term	Medium	Highly Likely	Medium	High		High	Low-Medium	Minimal	High Degree
AM GUALTY			Direct		Layout 1	Yes	Negative	Local	Short-term	Medium	Likely	Low	High	A speed limit of 20km/h must be maintained on all dirt roads; Dust suppression measures by means of either water or biodegradable chemical agent	High	Low	No Loss	Reversible
Accordance for management and an accordance of Colorador Section and Section a					Layout 2			Local	Short-term	Medium	Likely	Low	High	construction activities. Recycled water to be used, instead of potable water, to save	High	Low	No Loss	Reversible
Treatment for various and control of the control of		AIR QUALITY			Layout 1			Local	Medium-term	Medium	Definite	Medium	High	All construction vehicles and machinery will be maintained such as to operate efficiently.	Low	Low-Medium	Minimal	High Degree
SOL YOCK SEC. Leyent 2 Load Medium-term Markium Dalfolds Markium-term Dalfolds			Direct			Yes	Negative							In terms of transportation of workers and materials, collective transportation				
All schlotics and other machinery detailed comply with registrom time of detailment employers of detai			Billoot				rrogauro	Local	Medium-term	Medium	Definite	Medium	High		Low	Low-Medium	Minimal	High Degree
NOBE Light-forward of Contraction Carring and operation of Contraction Carring and operation Carring and Carring					Layout 2			Local	Wedanreim	Wedani	Demme	<i>Median</i>	riigri		Low	Eow-wedium	mma	riigii Begree
Baselelment of Dread NOSE Esselelment of Dread NOSE Esselelment of Dread NOSE Esselelment of Dread NOSE Esselelment of Dread Nose and explanate of control control can deplay and the second make comply with the manufacturer's operation of control control control can be added to mind by the second of control c				Congretion of poins	Layout 1			Neighbouring	Incidental	Medium	Definite	Low-Medium	High	The provisions of SANS 10103:2008 will apply to all areas within an audible distance of	Medium	Low	No Loss	Reversible
Establishment of Combustacion Caraginary Communication Caraginary Cara		NOISE	Direct	through construction vehicles and equipment,		Yes	Negative							Equipment and/or machinery which will be used must comply with the manufacturer's specifications on acceptable noise levels;				
personal process of any concentration of communication between all stakeholders and communication between all s				fauna and surrounding	Lavout 2			Neiahbourina	Incidental	Medium	Definite	Low-Medium	Hiah	Noise monitoring should be undertaken as spot checks;	Medium	Low	No Loss	Reversible
Total and water tanks and generation of power. Soil. Direct Soil. Direct Total Direct Direct Direct Direct Direct Direct Direct Layout 1 Layout 2 Neighbouring Medium-term Medium-High Definite Medium Highly Likely Neighbouring Short-term Medium-High Definite Medium Definite Highly Control countries are should be monitored able implemented (as outlined below) for the purpose of the purpose o	operation of construction				Layout 2			rioignzoumig	n o o o n o	oaa	Jomino	2511 1110510111	g.,			23.7	710 2000	7.070.000
SOIL Prect Prect	toilets and water tanks																	
Soil alteration including Origination occur within the rainy season, earth-manner tase Agent to a minimum. If cleaning of slopes occur within the rainy season, earth-manner must be created along the up-slope as the construction raise. Soil alteration including Origination occur within the rainy season, earth-manner must be created along the up-slope as the projection occur area. Soil alteration including Origination occur within the rainy season, earth-manner must be created along the up-slope as the part of the Contractor raise. Soil alteration including Origination occur area. Negative Negativ					Layout 1			Neighbouring	Medium-term	Medium-High	Definite	Medium	High	consultation with landscape architect and ECO should be done if required.	High	Low	Minimal	High Degree
SOIL Direct Dire					,			3					j	If clearing of slopes occur within the rainy season, earth berms must be created along	, and the second			3 (3)
and pollution and erosion. Layout 2 Neighbouring Medium-term Medium-High Definite Neighbouring Medium-term Medium Highly Likely Medium-High The high significant areas should be avoided and areas of medium sensitivity must be test exacusted to test for subsurface deposits. These areas should be monitored during reveavable heritage resources. Negative Negative Negative Negative Negative Neighbouring Short-term Medium Definite Neighbouring Neighbouring Short-term Medium Definite Neighbouring Short-term Neighbouring		SOIL	Direct			Yes	Negative							Where possible, natural vegetation should be retained to reduce the risk of erosion.				
Layout 2 Layout 2 Neighbouring No Internation Neighbouring Neighbourin							ŭ							will be responsible for reinstatement of the eroded area to its former state at his own				
HERITAGE Direct Dire					Lavout 2			Neighbouring	Medium-term	Medium-High	Definite	Medium	High	cleaned up by the Contractor or a nominated clean up organisation at the expenses of	High	Low	Minimal	High Degree
HERITAGE Direct														Waste, including solid and liquid waste and ablution facilities m.st be appropriately				
HERITAGE Direct destruction of non-renewable heritage resources. Layout 2 Yes Negative Regional Permanent Medium-High Definite High High High High High Gortheore should be implemented (as outlined below) for the project and a chance find procedure should be implemented (as outlined below) to sort uction and a chance find procedure should be implemented (as outlined below) to sort uction and a chance find procedure should be implemented (as outlined below) to sort uction and a chance find procedure should be implemented (as outlined below) to sort uction and a chance find procedure should be implemented (as outlined below) to sort uction and a chance find procedure should be implemented (as outlined below) Low Medium-High Partial Medium Definite Low-Medium Control measures to reduce visual impact including: No littering to be allowed; No littering to be allowed; No littering to be allowed;																		
VISUAL Direct Visual impact Visua		HERITAGE	Direct	destruction of non- renewable heritage		Yes	Negative							test excavated to test for subsurface deposits. These areas should be monitored during construction and a chance find procedure should be implemented (as outlined below)				
VISUAL Direct Visual impact Yes Negative				resources.	Layout 2			Kegional	Permanent	меаіит-High	Definite	High	High	ior the project as well as a site development management plan.	LOW	меаіит-High	Partial	меашт Degree
No illusing to be allowed;		VISUAL	Direct	Visual impact	Layout 1	Yes	Negative	Neighbouring	Short-term	Medium	Definite	Low-Medium	Medium	Suitable screening to be put in place during construction to minimise visual impacts;	Low	Low	No Loss	Reversible
		VIGUAL	Difect	visual IIIIpact	Layout 2	169	ivegative	Neighbouring	Short-term	Medium	Definite	Low-Medium	Medium	No littering to be allowed;	Low	Low	No Loss	Reversible

				IMPACTS												DI	EGREE
ACTIVITY	ASPECTS							CONSEQUENCE		PROBABILITY	SIGNIFICANCE (WOM)	CONFIDENCE	MANAGEMENT & MITIGATION MEASURES	MITIGATION EFFICIENCY	SIGNIFICANCE (WM)		
		TYPE	DESCRIPTION	ALTERNATIVE	CUMULATIVE	NATURE	Extent (A)	Duration (B)	Intensity (C)	Probability (P)	Significance (A+B+C)XP			2.7.02.10		LOSS RESOURCE	REVERSABILITY
		Direct	Dust emissions altering air quality and visibility on	Layout 1	Yes	Negative	Local	Short-term	Medium	Highly Likely	Low-Medium		Control through dust control measures including: A speed limit of 20km/h must be maintained on all dirt roads; Dust suppression measures by means of either water or biodegradable chemical agent	High	Low	No Loss	Reversible
		5.1000	nearby roads.	Layout 2		Nogauto	Local	Short-term	Medium	Highly Likely	Low-Medium	High	must be implemented during the construction phase to minimise dust generated by construction activities. Recycled water to be used, instead of potable water, to save water.	High	Low	No Loss	Reversible
	AIR QUALITY		Emissions from vehicles	Layout 1			Local	Medium-term	Medium	Definite	Medium		Control through mitigation measures including: All construction vehicles and machinery will be maintained such as to operate efficiently. Idling times of vehicles and machinery to be minimised; In terms of transportation of workers and materials, collective transportation	Low	Low-Medium	Minimal	High Degree
		Direct	and machinery (CO2, NOx, SOx, VOC's etc.).	Layout 2	Yes	Negative	Local	Medium-term	Medium	Definite	Medium	l limb	arrangements should be made to reduce individual car journeys where possible; All vehicles used during the project should be properly maintained and in good working order; All vehicles and other machinery should comply with road worthy requirements and comply with legislation in terms of allowable emissions.	Low	Low-Medium	Minimal	High Degree
	NOISE	Direct	Generation of noise through construction vehicles and equipment, causing a nuisance to	Layout 1	Yes	Negative	Neighbouring	Incidental	Medium	Definite	Low-Medium	, and the second	Control through noise control measures including: The provisions of SANS 10103:2008 will apply to all areas within an audible distance of residents or adjacent landowners; Equipment and/or machinery which will be used must comply with the manufacturer's specifications on acceptable noise levels; Construction activities should be limited to daytime only;	Medium	Low	Minimal	High Degree
			fauna and surrounding land uses.	Layout 2			Neighbouring	Incidental	Medium	Definite	Low-Medium		Noise monitoring should be undertaken as spot checks; When required noise mufflers should be utilised to reduced noise; It is important to keep an open channel of communication between all stakeholders and keep record of any concerns raised.	Medium	Low	Minimal	High Degree
		Direct	Loss of topsoil and erosion	Layout 1	Yes	Negative	Neighbouring	Permanent	Medium-High	Likely	Low-Medium	High	Avoid through control measures including: During clearing of vegetation, topsoil and subsoil must be stripped separately from each other and must be stored separately from spoil material for use in the rehabilitation phase.	High	Low	Minimal	High Degree
		Direct	Loss of topsoil and erosion	Layout 2	165	ivegative	Neighbouring	Permanent	Medium-High	Likely	Low-Medium	High	Topsoil should be protected from wind and rain, as well as contamination from diesel, concrete or wastewater. Topsoil stockpiles should be checked on a monthly basis to ensure that this is the case. Topsoil should be used in landscaping and rehabilitation where possible.	High	Low	Minimal	High Degree
	SOIL	Direct	Soil alteration including contamination and	Layout 1	No	Negative	Neighbouring	Medium-term	Low	Definite	Low-Medium	High	Control and stop through mitigation measures including: -instability and erosion of steep slopes must be stabilised immediately. Re-vegetation in consultation with landscape architect and ECO should be done if requiredTo reduce the loss of material by erosion, disturbance must be kept to a minimum. If clearing of slopes occur within the rainy season, earth berms must be created along the up-slope side of the construction area. Where possible, natural vegetation should be retained to reduce the risk of erosion. Should erosion occur due to negligence on the part of the Contractor, the Contractor	Low	Low	Minimal	High Degree
			compaction	Layout 2		ÿ	Neighbouring	Medium-term	Low	Definite	Low-Medium		will be responsible for reinstatement of the eroded area to its former state at his own expense. Any surface water pollution occurring as a result of this negligence will be cleaned up by the Contractor or a nominated clean up organisation at the expenses of the Contractor. Waste, including solid and liquid waste and ablution facilities must be appropriately managed to prevent contamination of soil. Hazardous materials (Hydrocarbon) storage areas to be installed and managed appropriately and spill procedures in place and implemented.	Low	Low	Minimal	High Degree
	LAND CAPABILITY	Direct	Loss of land capability	Layout 1	Yes	Negative	Site	Long-term	Low-Medium	Definite	Low-Medium	High	None	None	Low-Medium	Minimal	High Degree
Site clearing, removal of vegetation and topsoil (and stockpiling of topsoil) of the site footprint and for service infrastructure including access and haul roads, raw water (service water) and waste water pipelines and stormwater management infrastructure.	LAND CAPABILITY	Direct	Destruction, further loss and fragmentation of the vegetation community	Layout 2	Yes	Negative	Site Local	Long-term Long-term	Low-Medium Medium-High	Definite Definite	Low-Medium Medium-High	High	High sensitive areas (koppie and buffer) to be demarcated and avoided completely; All dumping and storage during the construction phase must be within the existing infrastructure footprint and the low sensitivity areas; All laydown, storage areas etc should be restricted to transformed areas during construction, close to the preferred option and existing roads should be used; The number (and size) of laydown, storage and staff facilities must be kept to a minimum; Building materials may not be stored for extended periods of time and must be removed from the site once the project has been concluded;	None High	Low-Medium Low	Minimal Partial	High Degree Medium Degree
				Layout 2			Local	Permanent	High	Definite	High	High	Dust-reducing mitigation measures; A spill management plan must be put in place; All rubble generated must be removed from the site; Keep storm water away from the working/mining areas; Prevent rainwater and the process water that has fallen on site from leaving the site in an uncontrolled and unregulated fashion. Implementation of a fire management plan; Environmental awareness training; Rehabilitation and re-vegetation.	Low	Medium-High	Irreplaceable	Irreversible
		Direct	Destruction of protected	Layout 1	Yes	Negative	Local	Permanent	High	Likely	Medium	High	No person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate, or in any other manner acquire or dispose of any protected tree or any product derived from a protected tree, except	High		No Loss	Reversible
	BIODIVERSITY		tree species	Layout 2		, in the second	Local	Permanent	High	Highly Likely	Medium-High	High	under a license or exemption. Environmental awareness training Fire management plan	Low	Medium	Partial	Medium Degree

				IMPACTS												D	EGREE
ACTIVITY	ASPECTS							CONSEQUENCE		PROBABILITY	SIGNIFICANCE (WOM)	CONFIDENCE	MANAGEMENT & MITIGATION MEASURES	MITIGATION EFFICIENCY	SIGNIFICANCE (WM)		
		TYPE	DESCRIPTION	ALTERNATIVE	CUMULATIVE	NATURE	Extent (A)	Duration (B)	Intensity (C)	Probability (P)	Significance (A+B+C)XP			LITICIENCI		LOSS RESOURCE	REVERSABILITY
													High sensitive areas (koppie and buffer) to be demarcated and avoided completely;				
													Construction activities should be limited during summer when the risk of disturbing sensitive life history stages (e.g. nesting) is lowest;				
				Layout 1			Regional	Long-term	Medium-High	Highly Likely	Medium-High		Where possible, work should be restricted to one area at a time;	Medium	Low	Minimal	High Degree
													If any faunal are recorded during construction, activities should temporarily cease, and time permitted for the species to move away. In the event the species does not move				
			Displacement of faunal community (including threatened and protected										away (voluntarily), the species must be removed safely from the area and relocated to a suitable area that will not be directly disturbed by the project;				
		Direct	species) due to habitat loss, direct mortalities and disturbance (noise, dust		Yes	Negative							Fauna species that have not moved away should be carefully and safely removed to a suitable location beyond the extent of the development footprint by a suitably qualified ECO trained in the handling and relocation of animals;				
			and vibration).										Waste management No killing of animals				
				Layout 2			Regional	Long-term	High	Highly Likely	Medium-High	nigri	Speedbumps: Inspecition of pipelines for leaks Transmission lines should be fitted with bird diverters.	Low	Medium	Partial	Medium Degree
													Lighting should be kept to a minimum; Implementation of a fire management plan;				
													Environmental awareness training; Rehabilitation and re-vegetation.				
		Direct	Spreading of alien vegetation	Layout 1	Yes	Negative	Neighbouring	Medium-term	Medium	Highly Likely	Low-Medium	Medium	Avoid through control measures including: Areas that are denuded during construction need to be re-vegetated with indigenous vegetation to prevent erosion during flood events. This will also reduce the likelihood of	High	Low	Minimal	High Degree
			rogotation	Layout 2			Neighbouring	Medium-term	Medium	Highly Likely	Low-Medium	Medium	encroachment by alien invasive plant species.	High	Low	Minimal	High Degree
	VISUAL	Direct	Visual impact	Layout 1 Layout 2	Yes	Negative	Neighbouring Neighbouring	Short-term Short-term	Medium Medium	Definite Definite	Low-Medium Low-Medium	High High	Control measures to reduce visual impact including: Suitable screening to be put in place during construction to minimise visual impacts.	Medium Medium	Low	No Loss No Loss	Reversible Reversible
			Destruction or partial destruction of non-	Layout 1			Regional	Permanent	Medium	Highly Likely	Medium-High	High	The high significant areas should be avoided and areas of medium sensitivity must be test excavated to test for subsurface deposits. These areas should be monitored during	Medium	Low	Minimal	High Degree
	HERITAGE	Direct	renewable heritage resources.	Layout 2	Yes	Negative	Regional	Permanent	Medium-High	Definite	High	High	construction and a chance find procedure should be implemented (as outlined below) for the project as well as a site development management plan.	Low	Medium-High	Partial	Medium Degree
			Additional burden on	Layout 1			Local	Short-term	Medium	Definite	Low-Medium	High		Medium	Low	Minimal	High Degree
	SERVICES	Direct	existing landfill.	Layout 2	Yes	Negative	Local	Short-term	Medium	Definite	Low-Medium	High	Waste minimisation strategies to be included in the EIA/EMPr and implemented.	Medium	Low	Minimal	High Degree
	SOIL, WATER D		Potential pollution of soil, surface and groundwater	Layout 1			Local	Incidental	Medium	Possible	Low	High	Control and stop through mitigation measures including:	High	Low	Minimal	High Degree
		Direct	due to indiscriminate disposal of waste.	Layout 2	No	Negative	Local	Incidental	Medium	Possible	Low	High	Waste, including solid and liquid waste and ablution facilities must be appropriately managed to prevent contamination of soil.	High	Low	Minimal	High Degree
				Layout 1			Neighbouring	Short-term	Medium	Likely	Low	Medium	Control measures to reduce visual impact including:	High	Low	No Loss	Reversible
Generation and disposal domestic waste,	VISUAL	Direct	Visual impact		Yes	Negative							Suitable screening to be put in place during construction to minimise visual impacts; No littering to be allowed;				
construction and hazardous waste				Layout 2			Neighbouring	Short-term	Medium	Likely	Low	Medium	Good housekeeping practices to be followed.	High	Low	No Loss	Reversible
			Mortalities of fauna caused														
			by ingestion of plastic and potentially toxic materials, or they may suffocate on	Layout 1			Regional	Permanent	High	Likely	Medium	Medium	Control measures to reduce visual impact including:	High	Low	Minimal	High Degree
	BIODIVERSITY	Direct	plastic, if waste is not disposed of correctly. They		No	Negative							No littering to be allowed; Waste management strategies to be included in the EIA/EMPr and implemented;				
			can also become stuck in waste and may die of hunger and or dehydration	Layout 2			Regional	Permanent	High	Likely	Medium	Medium	Good housekeeping practices to be followed.	High	Low	Minimal	High Degree
			as a result.														
	AID CHALLES	F	Dust emissions altering air	Layout 1	v	N. e	Local	Short-term	Medium	Highly Likely	Low-Medium	High	Control through dust control measures including: A speed limit of 20km/h must be maintained on all dirt roads; Dust suppression measures by means of either water or biodegradable chemical agent	High	Low	No Loss	Reversible
	AIR QUALITY	Direct	quality and visibility on nearby roads.	Layout 2	Yes	Negative	Local	Short-term	Medium	Highly Likely	Low-Medium	High	must be implemented during the construction phase to minimise dust generated by construction activities. Recycled water to be used, instead of potable water, to save water.	High	Low	No Loss	Reversible
			Noise	Layout 1			Local	Incidental	Medium	Definite	Low-Medium		Control through noise control measures including: Construction activities should be limited to daytime only;	Low	Low	No Loss	Reversible
	NOISE	Indirect	Noise generation by increased traffic on the roads and construction		Yes	Negative							Noise monitoring should be undertaken as spot checks; Road users should adhere to speed limits; Construction vehicles to be serviced at appropriate intervals to reduce unnecessary				
			vehicles.	Layout 2			Local	Incidental	Medium	Definite	Low-Medium	Medium	noise; It is important to keep an open channel of communication between all stakeholders and keep record of any concerns raised.	Low	Low	No Loss	Reversible
Loading/off-loading and transportation of construction materials,			Soil alteration including					м.с									11.15
machinery, equipment and construction			compaction, contamination and soil erosion through spillages of oil and fuel etc.				Neighbouring	Medium-term	Medium	Definite	Low-Medium		Control and stop through mitigation measures including: Construction vehicles to be serviced at appropriate intervals to reduce potential for	Medium	Low	Minimal	High Degree
workers.	SOIL		on gravel roads from poorly maintained		Yes	Negative							leaking of hydrocarbons; Construction vehicles to keep to the designated roads; Construction vehicles carrying materials to be appropriately covered as to reduce loss				
			construction vehicles; and spillages of construction materials etc.	Layout 2			Neighbouring	Medium-term	Medium	Definite	Low-Medium	High	of materials.	Medium	Low	Minimal	High Degree

				IMPACTS												DE	EGREE
			T				<u>.</u>	CONSEQUENCE		PROBABILITY	SIGNIFICANCE (WOM)			MITIGATION			
ACTIVITY	ASPECTS	TYPE	DESCRIPTION	ALTERNATIVE	CUMULATIVE	NATURE	Extent (A)	Duration (B)	Intensity (C)	Probability (P)	Significance (A+B+C)XP	CONFIDENCE	MANAGEMENT & MITIGATION MEASURES	EFFICIENCY	SIGNIFICANCE (WM)	LOSS RESOURCE	REVERSABILITY
	HEALTH AND		Potential for accidents due to increased traffic and construction vehicles not	Layout 1			Local	Permanent	High	Likely	Medium	Medium	Control through mitigation measures including:	High	Low	Minimal	High Degree
	SAFETY	Direct	keeping to traffic rules and speed limits and reckless driving.	Layout 2	No	Negative	Local	Permanent	High	Likely	Medium	Medium	Enforce speed limits; Penalties or fines for reckless driving.	High	Low	Minimal	High Degree
	NATURAL RESOURCES	Direct	Increased fuel	Layout 1	Yes	Negative	National	Short-term	Medium	Likely	Low-Medium	High	Reduce unnecessary trips through efficient planning.	Low	Low	Minimal	High Degree
	RESOURCES		consumption	Layout 2			National	Short-term	Medium	Likely	Low-Medium	High		Low	Low	Minimal	High Degree
	AIR QUALITY	Direct	Dust emissions altering air quality and visibility on	Layout 1	Yes	Negative	Neighbouring	Short-term	Medium	Likely	Low	High	Control through dust control measures including: A speed limit of 20km/h must be maintained on all dirt roads; Dust suppression measures by means of either water or biodegradable chemical agent	High	Low	No Loss	Reversible
			nearby roads.	Layout 2			Neighbouring	Short-term	Medium	Likely	Low	High	must be implemented during the construction phase to minimise dust generated by construction activities. Recycled water to be used, instead of potable water, to save water.	High	Low	No Loss	Reversible
	AIR QUALITY	Direct	Emissions from vehicles and machinery (CO2, NOx,	Layout 1	Yes	Negative	Neighbouring	Medium-term	Medium	Definite	Low-Medium	High	Control through mitigation measures including: -All construction vehicles and machinery will be maintained such as to operate efficiently. Idling times of vehicles and machinery to be minimised; -In terms of transportation of workers and materials, collective transportation arrangements should be made to reduce individual car journeys where possible;	Low	Low	Minimal	High Degree
			SOx, VOC's etc.).	Layout 2			Neighbouring	Medium-term	Medium	Definite	Low-Medium	High	 All vehicles used during the project should be properly maintained and in good working order; All vehicles and other machinery should comply with road worthy requirements and comply with legislation in terms of allowable emissions. 	Low	Low	Minimal	High Degree
	NOISE		Generation of noise through construction vehicles and equipment,	Layout 1			Neighbouring	Incidental	Medium	Definite	Low-Medium	High	Control through noise control measures including: •The provisions of SANS 10103.2006 will apply to all areas within an audible distance of residents or adjacent landowners; •Equipment and/or machinery which will be used must comply with the manufacturer's specifications on acceptable noise levels;	Medium	Low	No Loss	Reversible
Earthworks – excavations for establishment of site infrastructure, buildings, headgear, shaft box cut, installation of services		Direct	causing a nuisance to fauna and surrounding land uses.	Layout 2	Yes	Negative	Neighbouring	Incidental	Medium	Definite	Low-Medium	High	-Construction activities should be limited to daytime only; -Noise monitoring should be undertaken as spot checks; -When required noise mufflers should be utilised to reduced noise; -It is important to keep an open channel of communication between all stakeholders and keep record of any concerns raised.	Medium	Low	No Loss	Reversible
and construction of access and haul roads. Stockpiling of	TOPOGRAPHY	Direct	Temporary alteration of topography	Layout 1 Layout 2	Yes	Negative	Neighbouring Neighbouring	Short-term Short-term	Low-Medium Low-Medium	Definite Definite	Low Low	High High	None	Low	Low Low	No Loss No Loss	Reversible Reversible
construction and excavated materials	SOIL	Direct	Stockpiling of materials	Layout 1	Yes	Negative	Site	Short-term	Medium-High	Definite	Low-Medium	High	Control and stop through mitigation measures including:	Low	Low	No Loss	Reversible
	SUIL	Direct	compaction.	may cause soil	res	Negative	Site	Short-term	Medium-High	Definite	Low-Medium	High	Stockpiling only to be done on designated approved areas.	Low	Low	No Loss	Reversible
	HEALTH AND	compaction. L	Layout	No	Negative	Site	Permanent	High	Possible	Low-Medium	High	Prevent through:	High	Low	Minimal	High Degree	
	SAFETY	5661	to the site when falling into excavation.			negaare	Site	Permanent	High	Possible	Low-Medium	High	Complying with legislation and best practice health and safety standards.	High	Low	Minimal	High Degree
	HERITAGE	Direct	Destruction or partial destruction of non-	Layout 1	Yes	Negative	Regional	Permanent	Medium	Highly Likely	Medium-High	High	The high significant areas should be avoided and areas of medium sensitivity must be test excavated to test for subsurface deposits. These areas should be monitored during	Medium	Low	Minimal	High Degree
			renewable heritage resources.	Layout 2			Regional	Permanent	Medium-High	Definite	High	High	construction and a chance find procedure should be implemented (as outlined below) for the project as well as a site development management plan.	Low	Medium-High	Partial	Medium Degree
	MCHAI	Discret	Visual instal	Layout 1	Vee	Negative	Neighbouring	Short-term	Medium	Highly Likely	Low-Medium	High	Control measures to reduce visual impact including: -Suitable screening to be put in place during construction to minimise visual impacts;	High	Low	No Loss	Reversible
	VISUAL	Direct	Visual impact	Layout 2	Yes	Negative	Neighbouring	Short-term	Medium	Highly Likely	Low-Medium	High	No littering to be allowed; Good housekeeping practices to be followed.	High	Low	No Loss	Reversible
	TOPOGRAPHY	Direct	Temporary alteration of		Yes	Negative	Local	Short-term	Medium	Definite	Low-Medium	High	None	None	Low-Medium	No Loss	Reversible
	TOTOGRAFITY	Diffeet	topography caused by drill rig.	Layout 2	165	Hogalive	Local	Short-term	Medium	Definite	Low-Medium	High		None	Low-Medium	No Loss	Reversible
				Layout 1			Local	Incidental	Medium	Definite	Low-Medium	High	Control through noise control measures including: *The provisions of SANS 10103.2006 will apply to all areas within an audible distance of residents or adjacent landowners; *Equipment and/or machinery which will be used must comply with the manufacturer's specifications on acceptable noise levels;	Low	Low	No Loss	Reversible
	NOISE	Direct	Noise impact	Layout 2	Yes	Negative	Local	Incidental	Medium	Definite	Low-Medium	High	-Where possible, drilling and mining activities should be limited to daytime only; -Noise monitoring should be undertaken as spot checks; -When required noise mufflers should be utilised to reduced noise; -It is important to keep an open channel of communication between all stakeholders and keep record of any concerns raised.	Low	Low	No Loss	Reversible
	HEALTH AND	Direct	Health and safety impacts	Layout 1	No	Negative	Site	Permanent	High	Possible	Low-Medium	High	Prevent through:	High	Low	Minimal	High Degree
	SAFETY		saloty impacts	Layout 2			Site	Permanent	High	Possible	Low-Medium	High	*Complying with legislation and best practice health and safety standards.	High	Low	Minimal	High Degree

				IMPACTS												D	EGREE
ACTIVITY	ASPECTS							CONSEQUENCE		PROBABILITY	SIGNIFICANCE (WOM)	CONFIDENCE	MANAGEMENT & MITIGATION MEASURES	MITIGATION EFFICIENCY	SIGNIFICANCE (WM)		
		TYPE	DESCRIPTION	ALTERNATIVE	CUMULATIVE	NATURE	Extent (A)	Duration (B)	Intensity (C)	Probability (P)	Significance (A+B+C)XP					LOSS RESOURCE	REVERSABILITY
			Impacts on groundwater volumes due to dewatering	Layout 1			Local	Medium-term	Low	Highly Likely	Low-Medium	High	Lining of shaft	High	Low	No Loss	Reversible
Sinking of shafts and vent raises and		Direct	of the lined No 3 and No 4 shafts	Layout 2	Yes	Negative	Local	Medium-term	Low	Highly Likely	Low-Medium	High	Maintenance of lining Installation of monitoring boreholes and monitoring	High	Low	No Loss	Reversible
construction of SWD.	Ī		Impacts on groundwater volumes due to dewatering	Layout 1			Local	Long-term	Low-Medium	Definite	Medium	High	Lining / sealing off of individual inflow areas	High	Low	No Loss	Reversible
		Direct	of the unlined No 3A, 3B, and 3C Shafts	Layout 2	Yes	Negative	Local	Long-term	Low-Medium	Definite	Medium	High	Maintenance of lining Installation of monitoring boreholes and monitoring	High	Low	No Loss	Reversible
	GROUNDWATER	Direct	Impacts on groundwater qualities due to	Layout 1	Yes	Negative	Local	Medium-term	Low	Likely	Low	High	Lining of shaft Maintenance of lining	High	Low	No Loss	Reversible
	CROONDWATER	Bircot	construction of the lined No 3 and No4 shafts	Layout 2	163	Negative	Local	Medium-term	Low	Likely	Low	High	Installation of monitoring boreholes and monitoring	High	Low	No Loss	Reversible
		Direct	Impacts on groundwater qualities due to	Layout 1	Yes	Negative	Local	Medium-term	Low	Likely	Low	High	Lining / sealing off of individual inflow areas Maintenance of lining	High	Low	No Loss	Reversible
	_		construction of the unlined No 3A, 3B and 3C Shafts	Layout 2		, and the second	Local	Medium-term	Low	Likely	Low	High	Installation of monitoring boreholes and monitoring	High	Low	No Loss	Reversible
		Direct	Impacts on groundwater qualities due to seepage	Layout 1	Yes	Negative	Local	Medium-term	Low	Likely	Low	High	Proper construction and maintenance Regular inspection of the lining system	High	Low	No Loss	Reversible
			from the SWD	Layout 2			Local	Medium-term	Low	Likely	Low	High	Installation of monitoring boreholes and monitoring	High	Low	No Loss	Reversible
				Layout 1			Neighbouring	Medium-term	Medium	Definite	Low-Medium	High	Control through mitigation measures including: -All construction vehicles and machinery will be maintained such as to operate efficiently. Idling times of vehicles and machinery to be minimised;	Low	Low	Minimal	High Degree
Civil works including	AIR QUALITY	Direct	Emissions from vehicles and machinery (CO2, NOx, SOx, VOC's etc.).		Yes	Negative							In terms of transportation of workers and materials, collective transportation arrangements should be made to reduce individual car journeys where possible; -All vehicles used during the project should be properly maintained and in good working				
establishment of infrastructure on site including the stormwater				Layout 2			Neighbouring	Medium-term	Medium	Definite	Low-Medium	High	order; -All vehicles and other machinery should comply with road worthy requirements and comply with legislation in terms of allowable emissions.	Low	Low	Minimal	High Degree
dam, shaft headgear, conveyor belts and services infrastructure			0	Layout 1			Neighbouring	Incidental	Medium	Definite	Low-Medium	High	Control through noise control measures including: -The provisions of SANS 10103:2008 will apply to all areas within an audible distance of	Medium	Low	No Loss	Reversible
including permanent stormwater management	cluding permanent stormwater management structure, raw water vice water) pipeline,	Direct	Generation of noise through construction vehicles and equipment, causing a nuisance to		Yes	Negative							residents or adjacent landowners; -Equipment and/or machinery which will be used must comply with the manufacturer's specifications on acceptable noise levels; -Construction activities should be limited to daytime only;				
(service water) pipeline, potable water pipeline,			fauna and surrounding land uses.	Layout 2			Neighbouring	Incidental	Medium	Definite	Low-Medium	High	Noise monitoring should be undertaken as spot checks; When required noise mufflers should be utilised to reduced noise; It is important to keep an open channel of communication between all stakeholders	Medium	Low	No Loss	Reversible
pipeline, sewage pipeline, backfill pipeline, electrical substation and													and keep record of any concerns raised.				
powerlines. Construction of buildings			surface and ground water through cement mixing and spillages of hydrocarbons.	Layout 1			Regional	Short-term	Medium	Possible	Low	High	Control and stop through mitigation measures including: -Waste, including solid and liquid waste and ablution facilities must be appropriately managed to prevent contamination of soil.	High	Low	Minimal	High Degree
offices, ablution/change house, waste storage area and stores,	SOIL AND WATER	Direct		Layout 2	No	Negative	Regional	Short-term	Medium	Possible	Low		-Appropriate installation and maintenance of temporary and permanent ablution facilities sanitation infrastructureNo cement mixing may occur on open groundDrip trays to be used under stationary vehicles.	High	Low	Minimal	High Degree
including cement mixing.				Layout 1			Neighbouring	Short-term	Medium	Definite	Low-Medium		Control measures to reduce visual impact including:	Medium	Low	No Loss	Reversible
	VISUAL	Direct	Visual impact	Layout 2	Yes	Negative	Neighbouring	Short-term	Medium	Definite	Low-Medium		-Suitable screening to be put in place during construction to minimise visual impacts; -No littering to be allowed; -Good housekeeping practices to be followed.	Medium	Low	No Loss	Reversible
Energy, water, raw			Unsustainable use of natural resources may	Layout 1			National	Long-term	Medium-High	Possible	Low-Medium	High	Control through minimisation strategies:	Medium	Low	Minimal	High Degree
materials and fuel consumption	NATURAL RESOURCES	Direct	deplete and / or decrease the availability of water, power, raw materials and	Layout 2	Yes	Negative	National	Long-term	Medium-High	Possible	Low-Medium	High	-Reduce consumption of water by reusing water where possible; -Water and energy minimisation strategies to be included in the EIA/EMPr and implemented.	Medium	Low	Minimal	High Degree
			fuel. Soil erosion, compaction	Layout 1			Neighbouring	Medium-term	Medium	Likely	Low	High		High	Low	Minimal	High Degree
	SOILS	Direct	and contamination, as well as loss of topsoil.	Layout 2	Yes	Negative	Neighbouring	Medium-term	Medium	Likely	Low	High	Prevent and control through appropriate rehabilitation techniques recommended by biodiversity specialists.	High	Low	Minimal	High Degree
Demolition and /or removal of temporary construction	DIOD: TT	<u> </u>	Spreading of alien	Layout 1			Local	Medium-term	Medium	Likely	Low-Medium	High	Avoid through control measures including: *Areas that are denuded during construction need to be re-vegetated with indigenous	High	Low	Minimal	High Degree
infrastructure including stormwater drainage structures (e.g. diversion	BIODIVERSITY	Direct	vegetation	Layout 2	Yes	Negative	Local	Medium-term	Medium	Likely	Low-Medium	High	vegetation to prevent erosion during flood events. This will also reduce the likelihood of encroachment by alien invasive plant species.	High	Low	Minimal	High Degree
berms), chemical toilets and construction camp.	truction camp.	Diroct	Health and safety impacts e.g. accidents causing injury to workers or visitors	Layout 1	Na	Negati	Site	Permanent	High	Possible	Low-Medium	High	Prevent through:	High	Low	Minimal	High Degree
Rehabilitation of construction camp and other construction areas,	SAFETY	Direct	to the site when falling into excavations to be backfilled.	Layout 2	No	Negative	Site	Permanent	High	Possible	Low-Medium	High	Complying with legislation and best practice health and safety standards.	High	Low	Minimal	High Degree
including along the raw water (service water) potable water, sewage,			Contamination of surface and ground water through	Layout 1			Regional	Incidental	Medium	Possible	Low	High	Prevent through control measures: -Waste, including solid and liquid waste and ablution facilities must be appropriately	High	Low	Minimal	High Degree
mud and backfill pipelines and access and haul roads.	SOILS AND WATER	Direct	spillages of hydrocarbons	Layout 2	No	Negative	Regional	Incidental	Medium	Possible	Low	High	Property to be used underneath stationary vehicles and machinery.	High	Low	Minimal	High Degree
		Fa effo	efforts due to insufficient	Layout 1	Yes	Negative	Site	Medium-term	Medium-High	Highly Likely	Low-Medium	High	Prevent and control through appropriate rehabilitation techniques and monitoring	High	Low	Minimal	High Degree
	BIODIVERSITY	Direct efform	seeding and monitoring of vegetation establishment.	Layout 2	165	Hogalive	Site	Medium-term	Medium-High	Highly Likely	Low-Medium	High	recommended by biodiversity specialists.	High	Low	Minimal	High Degree

Part					IMPACTS				CONSEQUENCE		PROBABILITY	SIGNIFICANCE (WOM)					D	EGREE
The control of the	ACTIVITY	ASPECTS	TYPE	DESCRIPTION	AI TERNATIVE	CUMUL ATIVE	NATURE						CONFIDENCE	MANAGEMENT & MITIGATION MEASURES		SIGNIFICANCE (WM)	LOSS RESOURCE	DEVERSARII ITY
Part Control			2	J250.u. 1151.	7.2.12.00.0012	- Como 2 11112	10110112											, E1210 13 E11 1
March Control Contro	Creation of employment			in the area and economic	Layout 1			Regional	Short-term	High	Definite	Medium-High	High		Very High	High	No Loss	Reversible
Marked M	opportunities throughout	SOCIO-ECONOMIC	Direct	improve the socio- economic circumstances of	Layout 2	Yes	Positive	Regional	Short-term	High	Definite	Medium-High	High		Very High	High	No Loss	Reversible
March Marc											OPERATIONAL	PHASE						
Part																		
March Marc		NOISE	Direct	Noise impact	Layout 1	Yes	Negative	Local	Short-term	Medium	Highly Likely	Low-Medium	High	residents or adjacent landowners; *Equipment and/or machinery which will be used must comply with the manufacturer's specifications on acceptable noise levels; *Where possible, drilling and mining activities should be limited to daytime only; *Noise monitoring should be undertaken as spot checks;	Low	Low	No Loss	Reversible
Position of Part					Layout 2			Local	Short-term	Medium	Highly Likely	Low-Medium	High	•It is important to keep an open channel of communication between all stakeholders	Low	Low	No Loss	Reversible
Part			Direct			Yes	Negative	Local	Short-term	Medium	Definite	Low-Medium	High	None	None	Low-Medium	No Loss	Reversible
		VISUAL				. 30	guuto	Local	Short-term	Medium	Definite	Low-Medium	High	Control and the first of the control	None	Low-Medium	No Loss	Reversible
Part		SOILS	Direct	erosion and compaction on the surface, as well as	Layout 1	No	Negative	Site	Short-term	Medium	Possible	Low	High	 To reduce the loss of material by erosion, disturbance must be kept to a minimum. Waste, including solid and liquid waste and ablution facilities must be appropriately managed to prevent contamination of soil. 	High	Low	Minimal	High Degree
Part					Layout 2			Site	Short-term	Medium	Possible	Low	High	*spillages or nydrocarbons to be prevented.	High	Low	Minimal	High Degree
Control of London			Direct	Health and safety impacts	Layout 1	No	Negative	Site	Permanent	High	Possible	Low-Medium	High		High	Low	Minimal	High Degree
Contract of stations and Contract distances are serviced by the contract of the contract o		SAFEIT			Layout 2			Site	Permanent	High	Possible	Low-Medium	High		High	Low	Minimal	High Degree
Decided Processing Control of Processing C								Local	Permanent	High	Highly Likely	Medium-High	High	Dust-reducing mitigation measures; A spill management plan must be put in place; All rubble generated must be removed from the site;	High	Low	Minimal	High Degree
Controlled displacements Controlled displace			Direct	vegetation community and encroachment by alien		No	Negative	Local	Permanent	High	Highly Likely	Medium-High	High	Prevent rainwater and the process water that has fallen on site from leaving the site in an uncontrolled and unregulated fashion. Implementation of a fire management plan;	Medium	Low-Medium	Minimal	High Degree
Display of the property of t				and fragmentation of the	Layout 1			Local	Permanent	Medium-High	Highly Likely	Medium-High	High	If any faunal are recorded during operation, activities should temporarily cease, and time permitted for the species to move away. In the event the species does not move away (voluntarily), the species must be removed safely from the area and relocated to a			No Loss	Reversible
Direct Control manufactures by burning standard processing process	complex and removal of	BIODIVERSITY	Direct	ongoing anthropogenic disturbances (noise, traffic		No	Negative	Local	Permanent	Medium-High	Highly Likely	Medium-High	High	Inspecition of pipelines for leaks; Transmission lines should be fitted with bird diverters; Lighting should be kept to a minimum; Implementation of a fire management plan;	Medium	Low-Medium	Minimal	High Degree
Direct (round motalistics and/or proceduring) Lyonal 2 Local Permanent Medium-High Highly Likely High sensible series (Rope and buffer) to be demancated and encided completely; High enroller series (Rope and buffer) to be demancated and encided completely; High Highly Likely Medium-High Highly Likely Medium-High Highly Likely Highly Likely Highly Likely Highly Highly Highly Likely Highly Lik				Loss of faunal species	Layout 1			Local	Permanent	Medium-High	Highly Likely	Medium-High	High		High	Low	Minimal	High Degree
not be five remaining character graded and any out-than areas, with absorbing of the remaining character graded and any out-than areas, with a welfunder screen. We are continued and any out-than areas, with a welfunder screen. We are continued and any out-than areas, with a welfunder screen. We are continued and any out-than areas, with a welfunder screen. We are continued and any out-than areas, with a welfunder screen. We are continued and any out-than areas, with a welfunder screen. We are continued and any out-than areas, with a welfunder screen. We are continued and any out-than areas, with a welfunder screen. We are continued and any out-than area, continued and any out-than area. We are continued and any out-than area. Con			Direct	(road mortalities and/or	Layout 2	No	Negative	Local	Permanent	Medium-High	Highly Likely	Medium-High	High	No killing of animals;	High	Low	Minimal	High Degree
Local Permanent High Highly Likely Medium-High Rehabilitation of construction impacted area, continuous monitoring, and maintenance. Water quality Upout 2 Local Long-term Medium Definite Local Long-term Medium Highly Likely Rehabilitation of construction impacted area, continuous monitoring, and maintenance. Weet Land AND DRAINAGE LINE WET LAND AND DRAINAGE LINE Contamination of water run-off Indirect Contamination of water run-off Indirect Local Long-term Medium Highly Likely Medium Highly Likely Medium Highly Likely Rehabilitation of construction impacted area, continuous monitoring, and maintenance. Medium Medium No Loss Reversible Local Long-term Medium Definite Medium Highly Likely Rehabilitation of construction impacted area, continuous monitoring and maintenance. Medium Medium No Loss Reversible Local Long-term Medium Definite Medium Highly Likely Rehabilitation of construction impacted area, continuous monitoring and maintenance. Medium Medium No Loss Reversible Local Long-term Medium Highly Likely Medium Highly Likely Rehabilitation of construction impacted area, continuous monitoring, storm water management, and stit management; and sti				into the few remaining natural grassland and wetlands areas, with				Local	Permanent	High	Highly Likely	Medium-High	High	Waste management; Inspecition of pipelines for leaks;	High		No Loss	Reversible
Direct Water quality Layout 2 Yes Positive Neighbouring Long-term Medium Highly Likely Medium High No Loss Reversible Layout 1 Yes Local Long-term Medium Definite Medium High No Loss Reversible Layout 2 Ves Local Long-term Medium Definite Medium High No Loss Reversible Layout 2 Ves Local Long-term Medium Definite Medium High Rehabilitation of construction impacted area, continuous monitoring and maintenance. Medium Medium No Loss Reversible No Loss Reversible Medium No Loss Reversible Medium Medium No Loss Reversible Medium			Direct	poaching, litter as well as introduction of pests, diseases and feral species		No	Negative	Local	Permanent	High	Highly Likely	Medium-High	High	Lighting should be kept to a minimum; Implementation of a fire management plan; Environmental awareness training;	High		No Loss	Reversible
Layout 2 Neighbouring Long-term Medium Highly Likely Medium High Layout 1 Yes Layout 1 Yes Layout 1 Yes Layout 2 Local Long-term Medium Definite Medium High Rehabilitation of construction impacted area, continuous monitoring and maintenance. Layout 1 Yes Layout 1 Yes Layout 1 Yes Layout 2 Layout 1 Yes Layout 2 Layout 1 Yes No Loss Reversible High Medium Medium No Loss Reversible Tehabilitation of construction impacted area, continuous monitoring, storm water management, and silt management. Together with the WULA, a rehabilitation and monitoring plan will have to be compiled and approved; Thirty Medium No Loss Reversible High Medium No Loss Reversible Together with the WULA, a rehabilitation and monitoring plan will have to be compiled and approved; Thirty Medium No Loss Reversible High Medium No Loss Reversible High Medium No Loss Reversible Together with the WULA, a rehabilitation and monitoring plan will have to be compiled and approved; Thirty Medium No Loss Reversible High Medium No Loss Reversible High Medium No Loss Reversible Wetland monitoring occurring on a quarterly basis should be conducted by a skilled High Low Medium No Loss Reversible High Medium No Loss Reversible Wetland monitoring occurring on a quarterly basis should be conducted by a skilled High Low Medium No Loss Reversible Wetland monitoring occurring on a quarterly basis should be conducted by a skilled					Layout 1			Neighbouring	Long-term	Medium	Highly Likely	Medium	High		Medium	Medium	No Loss	Reversible
Indirect Silt Ves Positive Layout 2 Ves Positive Local Long-term Medium Definite Medium Highly Likely Medium Highly			Direct	Water quality	Layout 2	Yes	Positive	Neighbouring	Long-term	Medium	Highly Likely	Medium	High	Rehabilitation of construction impacted area, continuous monitoring.	Medium	Medium	No Loss	Reversible
WETLAND AND DRAINAGE LINE WETLAND AND DRAINAGE LINE Layout 2 Layout 2 Local Long-term Medium Definite Medium Highly Likely Medium H			la dina	034	Layout 1	V	D36	Local	Long-term	Medium	Definite	Medium	High	Dahahilation of construction in a standard service.	Medium	Medium	No Loss	Reversible
WETLAND AND DRAINAGE LINE WETLAND AND DRAINAGE LINE Contamination of water from hazardous substances from hazardous substances substances substances substances substances and sit management, and sit manag			iriairect	SIIT	Layout 2	Yes	POSITIVE	Local	Long-term	Medium	Definite	Medium	High	прастения по сольки свой в прастення агеа, continuous monitoring and maintenance.	Medium	Medium	No Loss	Reversible
WETLAND AND DRAINAGE LINE Contamination of water from hazardous substances Layout 2 Layout 2 Layout 2 Local Long-term Medium Highly Likely Medium High High Medium High and approved; High Medium No Loss Reversible Approved stormwater management plan must be implemented. High Low Minimal High Degree Site Incidental Low-Medium Possible Low High Wetland monitoring occurring on a quarterly basis should be conducted by a skilled High Low Minimal High Degree					Layout 1			Local	Long-term	Medium	Highly Likely	Medium	High	management, and silt management;	High	Medium	No Loss	Reversible
Contamination of water from hazardous substances substances Substances Layout 1 Yes Negative Site Incidental Low-Medium Possible Low High Wetland monitoring occurring on a quarterly basis should be conducted by a skilled High Low Minimal High Degree Wetland monitoring occurring on a quarterly basis should be conducted by a skilled			Direct	Surface water run-off	Layout 2	Yes	Positive	Local	Long-term	Medium	Highly Likely	Medium	High		High	Medium	No Loss	Reversible
substances Lowert 2 Site Incidental Low-Medium Possible Low High Wetland monitoring occurring on a quarterly basis should be conducted by a skilled High Low Minimal High Degree		DRAINAGE LINE	Indica -+		Layout 1	Van	Negativ-	Site	Incidental	Low-Medium	Possible	Low	High	Approved stormwater management plan must be implemented.	High	Low	Minimal	High Degree
			munect		Layout 2	162	ivegative	Site	Incidental	Low-Medium	Possible	Low	High		High	Low	Minimal	High Degree

				IMPACTS												D	EGREE
ACTIVITY	ASPECTS	TYPE	DESCRIPTION	ALTERNATIVE	CUMULATIVE	NATURE		CONSEQUENCE		PROBABILITY	SIGNIFICANCE (WOM)	CONFIDENCE	MANAGEMENT & MITIGATION MEASURES	MITIGATION EFFICIENCY	SIGNIFICANCE (WM)	LOSS RESOURCE	REVERSABILITY
							Extent (A)	Duration (B)	Intensity (C)	Probability (P)	Significance (A+B+C)XP						
			Disturbance of natural	Layout 1	V		Neighbouring	Long-term	Low-Medium	Likely	Low	High	and their associated drivers;	High	Low	Minimal	High Degree
		Direct	system	Layout 2	Yes	Negative	Neighbouring	Long-term	Low-Medium	Likely	Low	High	Wetland drivers should be protected as far as possible. Wetland release into downstream aquatic resources should be rehabilitated, enhanced	High	Low	Minimal	High Degree
		Direct	Disturbance/pollution of	Layout 1	Yes	Negative	Neighbouring	Long-term	Low	Likely	Low	High	and monitored. Water quality preservation is key. Monitoring should take place during the operational	High	Low	Minimal	High Degree
			sub-surface flow	Layout 2		- Togulio	Neighbouring	Long-term	Low	Likely	Low	High	phase as per the Water Use License (WUL) requirements.	High	Low	Minimal	High Degree
		Direct	Disturbance of aquatic ecological systems	Layout 1 Layout 2	Yes	Negative	Neighbouring Neighbouring	Long-term Long-term	Low	Highly Likely Highly Likely	Low-Medium Low-Medium	High High	Enhance wetland integrity.	High High	Low	Minimal Minimal	High Degree High Degree
				-									Control through dust control measures including:	-			
		Direct	Dust emissions altering air quality and visibility on nearby roads.	Layout 1	Yes	Negative	Local	Long-term	Medium-High	Highly Likely	Medium		A speed limit of 20km/h must be maintained on all dirt roads; Dust suppression measures by means of either water or biodegradable chemical agent must be implemented during the construction phase to minimise dust generated by expectations of the particular and	Medium	Low	Minimal	High Degree
			-	Layout 2			Local	Long-term	Medium-High	Highly Likely	Medium	High	construction activities. Recycled water to be used, instead of potable water, to save water.	Medium	Low	Minimal	High Degree
	AIR QUALITY			Layout 1			Local	Long-term	Medium	Definite	Medium	High	Control through mitigation measures including: +All vehicles and machinery will be maintained such as to operate efficiently. Idling times of vehicles and machinery to be minimised;	Low	Low-Medium	Minimal	High Degree
		Direct	Emissions from vehicles and machinery (CO2, NOx, SOx, VOC's etc.)	Layout 2	Yes	Negative	Local	Long-term	Medium	Definite	Medium		In terms of transportation of workers and materials, collective transportation arrangements should be made to reduce individual car journeys where possible; All vehicles used during the project should be properly maintained and in good working order; All vehicles and other machinery should comply with road worthy requirements and comply with legislation in terms of allowable emissions.	Low	Low-Medium	Minimal	High Degree
		1		Layout 1	V	Needin	Local	Long-term	Medium	Definite	Medium	High		Low	Low-Medium	No Loss	Reversible
		Indirect	increased traffic on the surrounding roads.	Layout 2	Yes	Negative	Local	Long-term	Medium	Definite	Medium	High	Control through noise control measures including: •Where possible, mining activities should be limited to daytime only;	Low	Low-Medium	No Loss	Reversible
	NOISE	Direct	Generation of noise through heavy vehicles and equipment, causing a	Layout 1	Yes	Negative	Neighbouring	Long-term	Medium	Definite	Medium	High	Noise monitoring should be undertaken as spot checks; Road users should adhere to speed limits; Mining vehicles to be serviced at appropriate intervals to reduce unnecessary noise; It is important to keep an open channel of communication between all stakeholders	Medium	Low	No Loss	Reversible
Loading / off-loading and transportation / hauling of overburden			nuisance to fauna and surrounding land uses.	Layout 2		,	Neighbouring	Long-term	Medium	Definite	Medium	High	and keep record of any concerns raised.	Medium	Low	No Loss	Reversible
and ore and transportation of construction workers and other traffic.	SOILS	B: .	Soil alteration including compaction, contamination and soil erosion through spillages of oil and fuel etc.	Layout 1			Neighbouring	Long-term	Medium	Possible	Low		Control and stop through mitigation measures including: -Mining vehicles to be serviced at appropriate intervals to reduce potential for leaking of hydrocarbons;	High	Low	Minimal	High Degree
		Direct	on gravel roads from poorly maintained heavy vehicles; and spillages of construction materials etc.	Layout 2	No	Negative	Neighbouring	Long-term	Medium	Possible	Low	High	Mining vehicles to keep to the designated roads; Mining vehicles carrying materials to be appropriately covered as to reduce loss of materials.	High	Low	Minimal	High Degree
		Direct	Increase in fauna mortalities on the roads.	Layout 1	No	Negative	Local	Permanent	High	Possible	Low-Medium	High	Control through mitigation measures including: -tenforce speed limits; -Penalties or fines for reckless driving.	Medium	Low	Minimal	High Degree
			mortanues on the roads.	Layout 2			Local	Permanent	High	Possible	Low-Medium	High	Trendities of files for recicless driving.	Medium	Low	Minimal	High Degree
	HEALTH AND SAFETY	Direct	Potential for accidents due to increased traffic and heavy vehicles not keeping	Layout 1	No	Negative	Local	Permanent	High	Possible	Low-Medium	High	Control through mitigation measures including: -Enforce speed limits;	High	Low	Minimal	High Degree
			to traffic rules and speed limits and reckless driving.	Layout 2			Local	Permanent	High	Possible	Low-Medium	High	Penalise or fines for reckless driving.	High	Low	Minimal	High Degree
	TRAFFIC	Direct	Increased traffic on adjacent roads and access	Layout 1	Yes	Negative	Local	Long-term	Medium	Highly Likely	Medium	High	Reduce unnecessary trips through efficient planning.	Medium	Low	Minimal	High Degree
	NATURAL		issues.	Layout 2 Layout 1			Local National	Long-term Medium-term	Medium Low	Highly Likely Definite	Medium Medium	High High		Medium Low	Low Low-Medium	Minimal Minimal	High Degree High Degree
	RESOURCES	Direct	consumption.	Layout 2	Yes	Negative	National	Medium-term	Low	Definite	Medium	High	Reduce unnecessary vehicle trips through efficient planning.	Low	Low-Medium	Minimal	High Degree
		Direct	Impacts on groundwater volumes due to dewatering	Layout 1	Yes	Negative	Local	Medium-term	Low	Highly Likely	Low-Medium	High	Lining of shaft Maintenance of lining	High	Low	No Loss	Reversible
			of the lined No 3 and No 4 shafts	Layout 2		ÿ	Local	Medium-term	Low	Highly Likely	Low-Medium	High	Installation of monitoring boreholes and monitoring	High	Low	No Loss	Reversible
			Impacts on groundwater volumes due to dewatering	Layout 1			Local	Long-term	Low-Medium	Definite	Medium	High	Lining / sealing off of individual inflow areas	High	Low	No Loss	Reversible
		Direct	of the unlined No 3A, 3B, and 3C Shafts	Layout 2	Yes	Negative	Local	Long-term	Low-Medium	Definite	Medium	High	Maintenance of lining Installation of monitoring boreholes and monitoring	High	Low	No Loss	Reversible
	GROUNDWATER	Direct	Impacts on groundwater qualities due to operation	Layout 1	Yes	Negative	Local	Medium-term	Low	Likely	Low	High	Lining of shaft	High	Low	No Loss	Reversible
Sinking and operation of shafts and vent raises		Direct	of the lined No 3 and No4 shafts	Layout 2	100	Negative	Local	Medium-term	Low	Likely	Low	High	Maintenance of lining Installation of monitoring boreholes and monitoring	High	Low	No Loss	Reversible
and operation of the SWD, reef storage and waste silos.		Direct	Impacts on groundwater qualities due to seepage	Layout 1	Yes	Negative	Local	Medium-term	Low	Likely	Low	High	Lining / sealing off of individual inflow areas Maintenance of lining	High	Low	No Loss	Reversible
.74310 31105.		2001	from the SWD	Layout 2			Local	Medium-term	Low	Likely	Low	High	Installation of monitoring boreholes and monitoring	High	Low	No Loss	Reversible
		Direct	Impacts on groundwater qualities due to seepage	Layout 1	Yes	Negative	Local	Medium-term	Low	Likely	Low	High	Proper construction and maintenance Regular inspection of the lining system	High	Low	No Loss	Reversible
		Direct	from the Reef and Waste Storage Silos	Layout 2	169	ivegative	Local	Medium-term	Low	Likely	Low	High	Installation of monitoring boreholes and monitoring	High	Low	No Loss	Reversible
			Decrease in water availability to persons	Layout 1			Regional	Long-term	Medium-High	Possible	Low-Medium	High	Lining of shafts 3 and 4	High	Low	Minimal	High Degree
	SERVICES	Direct	dependent on ground water such as farmers and local communities.	Layout 2	Yes	Negative	Regional	Long-term	Medium-High	Possible	Low-Medium	High	Luring or shalls 3 arior 4 Luring / sealing off of individual inflow areas of ventilation shafts Maintenance of lining	High	Low	Minimal	High Degree

				IMPACTS				CONSEQUENCE		PROBABILITY	SIGNIFICANCE (WOM)					D	DEGREE
ACTIVITY	ASPECTS							CONSEQUENCE		PROBABILITY	SIGNIFICANCE (WOM)	CONFIDENCE	MANAGEMENT & MITIGATION MEASURES	MITIGATION EFFICIENCY	SIGNIFICANCE (WM)		
		TYPE	DESCRIPTION	ALTERNATIVE	CUMULATIVE	NATURE	Extent (A)	Duration (B)	Intensity (C)	Probability (P)	Significance (A+B+C)XP					LOSS RESOURCE	REVERSABILITY
				Layout 1			Neighbouring	Long-term	Medium	Possible	Low	Medium	Control through: -The provisions of SANS 10103:2008 will apply to all areas within an audible distance of residents or adjacent landowners;	Medium	Low	No Loss	Reversible
Operation of conveyor belts	NOISE	Direct	Noise impact	Layout 2	Yes	Negative	Neighbouring	Long-term	Medium	Possible	Low	Medium	-Conveyor belts, if any, which will be used must comply with the manufacturer's specifications on acceptable noise levels; -Where possible, operation activities should be limited to daytime only; -Noise monitoring should be undertaken as spot checks; -When required noise mufflers should be utilised to reduced noise; -It is important to keep an open channel of communication between all stakeholders and keep record of any concerns raised.	Medium	Low	No Loss	Reversible
Operation and maintenance of the support services	0011.0	Pi i	Soil erosion, compaction	Layout 1			Site	Long-term	Medium	Highly Likely	Low-Medium	Medium	Control and stop through mitigation measures including: -Mining vehicles to be serviced at appropriate intervals to reduce potential for leaking of hydrocarbons;	High	Low	Minimal	High Degree
infrastructure on the shaft complex including substation, pollution control dam and stormwater management infrastructure, powerlines, raw water (service water) pipelines,	SOILS	Direct	and contamination.	Layout 2	No	Negative	Site	Long-term	Medium	Highly Likely	Low-Medium	Medium	Mining vehicles to keep to the designated roads;Mining vehicles carrying materials to be appropriately covered as to reduce loss of materials;Spill procedures to be approved and implemented and included in the EIA/EMPr.	High	Low	Minimal	High Degree
	BIODIVERSITY		Spreading of alien	Layout 1			Local	Long-term	Medium	Likely	Low-Medium	Medium	Avoid through control measures including: -Alien invasive species control methods to be included in the EIA/EMPr and	High	Low	Minimal	High Degree
sewage, backfill and mud pipelines, access and haul roads.		Direct	vegetation	Layout 2	Yes	Negative	Local	Long-term	Medium	Likely	Low-Medium	Medium	implemented; -Recommendations by Biodiversity specialist to be included in the EIA/EMPr and implemented.	High	Low	Minimal	High Degree
Energy, fuel, water	NATURAL	i	Unsustainable use of natural resources may	Layout 1	V		National	Permanent	Medium-High	Possible	Low-Medium	Medium	Control through minimisation strategies: -Reduce consumption of water by reusing water where possible;	Medium	Low	Minimal	High Degree
consumption and depletion of minerals	RESOURCES	Direct	deplete and / or decrease the availability of water, power, minerals and fuel.	Layout 2	Yes	Negative	National	Permanent	Medium-High	Possible	Low-Medium	Medium	-Water and energy minimisation strategies to be included in the EIA/EMPr and implemented.	Medium	Low	Minimal	High Degree
Creation of new employment			Decreased unemployment in the area and economic multiplier effects will	t Layout 1			Regional	Long-term	High	Definite	High	Medium		Very High	High	No Loss	Reversible
opportunities and sustaining existing employment at the mine.	SOCIO-ECONOMIC	Direct	improve the socio- economic circumstances o the local community and wider region.		Yes	Positive	Regional	Long-term	High	Definite	High	Medium	Use of local labour. Implementation of Social and Labour Plan	Very High	High	No Loss	Reversible
		Indirect	Decline/increase in	Layout 1	Yes	Negative	Local	Long-term	Medium-High	Likely	Low-Medium	Medium	Implementation of all the mitigation measures in the EMPr.	Medium	Low	No Loss	Reversible
Operation of the shaft	SOCIO-ECONOMIC		property value	Layout 2		, i	Local	Long-term	Medium-High	Likely	Low-Medium	Medium		Medium	Low	No Loss	Reversible
complex		Indirect	Loss of Sense of Place	Layout 1	Yes	Negative	Local	Long-term	Medium	Likely	Low-Medium	Medium	Implementation of all the mitigation measures in the EMPr.	Very Low	Low-Medium	Partial	Medium Degree
				Layout 2		-	Local	Long-term	Medium	Likely	Low-Medium	Medium	-	Very Low	Low-Medium	Partial	Medium Degree