Air Quality

				Constructio	on Phase					
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	· ·	gnificance (E+D+M)*P)	Status (+ve or -ve)	Confidence	
	Nature of impact:	The generation	of particulate m	natter as a result	of construction	n of the roads, cl	earing of vegetation, dr	illing and blastir	ng, material handling,	
	without	3	1	8	4	48	Medium	-		
	with	3	1	4	3	24	Low	-		
Impact due to the generation of particulate matter (dust)	degree to which impact can be reversed: degree of impact on irreplaceable	npact can be include: - watering, chemical stabilization, and the reduction of surface wind speed though the use of windbreaks and source egree of impact on								
	resources: Nature of impact:	The generation	of emissions pro	nduced from co	nstruction vehic	les and blasting.				
	without	2	1	4	4	28	Low	-		
	with	2	1	2	3	15	Low	-		
Impact due to the generation of gases	due to the degree to which Mitigation measures can be implemented as an attempt to reduce the production of gases from both vehicles use									
	degree of impact on irreplaceable resources:				N/A	· ·	·	·		

Air Quality

	Operational Phase											
Potential Impact	Mitigation	Extent	Duration	Magnitude	Probability	Si	gnificance	Status	Confidence			
i otentiai impact	wiitigation	(E)	(D)	(M)	(P)	•	(E+D+M)*P)	(+ve or -ve)				
	Nature of impact:	Fugitive dust ca	n have an impa	ct on the enviro	nment as a resu	It of drilling and	I blasting activities, mate	erials handling a	and transfer, bulldozing,			
	without	3	4	8	4	60	Medium	-				
	with	2	4	4	3	30	Low	-				
Impact as a result of the	degree to which	All mitigation n	All mitigation measures have been included in the Environmnetal Impact Report. Some of these mitigation									
increase in fugitive dust	impact can be	measures inclu	de:									
emissions	reversed:	- watering, che	mical stabilizatio	on, and the redu	ction of surface	wind speed tho	ough the use of windbre	aks and source				
	degree of impact on											
	irreplaceable	These activities	can contribute	to irreplaceable	loss of fresh an	d clean air pres	ent in the area.					
	resources:											

Air Quality

			De	commissio	ning Phase	<u>,</u>						
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)		gnificance (E+D+M)*P)	Status (+ve or -ve)	Confidence			
	Nature of impact:	TSP and Pm	10 has an impa	ct on air quality	as a result of u	npaved road usa	ge, recovery of topsoil f	from stockpiles a	is an attempt to re-			
	without	2	1	6	4	36	Medium	-				
	with	2	1	4	3	21	Low	-				
-f.th	degree to which impact can be reversed:	control major o	e to the generally high existing background particulate air concentrations in the region, it is recommended to ntrol major contributing sources. Wind erosion of exposed areas should be kept to a minimum through watering ograms and avoiding unnecessary disturbance of stabilised areas.									
	degree of impact on irreplaceable resources:	These activities	These activities can contribute to irreplaceable loss of fresh and clean air present in the area.									
	Nature of impact:	The generation	of gases such a	s emissions prod	duced from cons	struction vehicle	s and blasting.					
	without	2	1	4	4	28	Low	-				
	with	2	1	2	3	15	Low	-				
generation of gases	degree to which impact can be reversed:	and surface bla	Mitigation measures can be implemented as an attempt to reduce the production of gases from both vehicles use and surface blasting. Catalytic converters can be fitted to construction vehicles to aid in the reduction of gases produced. Regular maintenance of construction vehicles can also reduce the gases produced. Well planned blasting									
	degree of impact on irreplaceable resources:				N/A							

Air Quality

	Cumulative Impacts											
Potential Impact	Mitigation	Extent	Duration	Magnitude	Probability		gnificance	Status	Confidence			
1 otential impact	wiitigation	(E)	(D)	(M)	(P)		(E+D+M)*P)	(+ve or -ve)				
	Nature of impact:	The region is	dominated by a	number of coal	reserves which	have now start	ed to be mine. The emis	sions from thes	e multiple coal mines			
	without	3	4	6	4	52	Medium	-				
Impact on air quality as a	with	3	4	4	3	33	Medium	-				
result the combined	degree to which	•		•	•	•	tion of gases from both					
emissions from other coal	impact can be	and surface bla	sting. Catalytic	converters can b	e fitted to cons	truction vehicle	s to aid in the reduction	of gases				
	reversed:	produced. Regu	ılar maintenanc	e of constructio	n vehicles can a	lso reduce the g	ases produced. Well pla	nned blasting				
	degree of impact on											
	irreplaceable		Loss in fau	una species due	to the degradat	ion of air quality	y and dust fallout					
	resources:											

Aquatic

			(Constructio	on Phase							
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)		gnificance (E+D+M)*P)	Status (+ve or -ve)	Confidence			
	Nature of impact:	The Impacts on	habitat for flora	al species is as a	result of:							
	without	4	4	8	4	64	High	-				
	with	3	4	6	4	52	Medium	-				
Heavy metal contamination	degree to which impact can be reversed:	measures inclu	rigation measures have been included in the Environmnetal Impact Report. Some of these mitigation ures include: The that as far as possible all infrastructures are placed outside of wetland, riparian, drainage and stream areas.									
	degree of impact on irreplaceable resources:	·	replaceable loss of aquatic habitats due to heavy metal contamination that will be experienced when the mine beings the construction activity.									
	Nature of impact:	The Impacts on	aquatic habitat	is as a result of:								
	without	3	4	8	4	60	Medium	-				
	with	3	4	6	4	52	Medium	-				
I impacts on loss of addiance	degree to which impact can be reversed:	measures inclu	de:				ort. Some of these mitig I, riparian, drainage and					
	degree of impact on irreplaceable resources:		·		·		beings the construction					
	Nature of impact:	The Impacts on	the loss of faqu	uatic biodiversit	y and sensitive t	taxa that are of	conservational concern	is as a result of:				
	without	3	4	8	4	60	Medium	-				
	with	3	4	6	4	52	Medium	-				
	degree to which impact can be reversed:	All mitigation measures have been included in the Environmnetal Impact Report. Some of these mitigation measures include: - Ensure that as far as possible all infrastructure is placed outside of sensitive wetland areas, streams and rivers;										

	degree of impact on irreplaceable resources:	Irreplacea	Irreplaceable loss of aquatic biodiversity and sensitive taxa will be experienced when the mine beings the construction activity.									
	Nature of impact:	The impacts on	npacts on the loss of in stream flow as a result of:									
	without	4	4 5 8 4 68 High -									
	with	3	3 4 6 4 <u>52 Medium</u> -									
Impacts on loss of in	degree to which	All mitigation m	easures have b	een included in	the Environmne	tal Impact Repo	rt. Some of these mitig	gation				
stream flow	impact can be	measures inclu	de:									
Sti Calli HOW	reversed:	- Ensure that as	far as possible	all infrastructure	es are placed ou	tside of drainag	e and river areas.					
	degree of impact on											
	irreplaceable	Irreplaceable lo	eable loss of instream flow will be experienced when the mine beings the construction activity.									
	resources:											

Aquatic

				Operation	al Phase							
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)		gnificance (E+D+M)*P)	Status (+ve or -ve)	Confidence			
	Nature of impact:	The Impacts on	habitat for flora	al species is as a	result of:							
	without	4	4	8	4	64	High	-				
	with	3	4	6	4	52	Medium	-				
Heavy metal contamination	degree to which impact can be reversed:	measures inclu	rigation measures have been included in the Environmnetal Impact Report. Some of these mitigation ures include: The that as far as possible all infrastructures are placed outside of wetland, riparian, drainage and stream areas.									
	degree of impact on irreplaceable resources:	Irreplaceat	Irreplaceable loss of aquatic habitats due to heavy metal contamination that will be experienced during the construction phase of the mine									
	Nature of impact:	The Impacts on	aquatic habitat	is as a result of:								
	without	3	4	8	4	60	Medium	-				
	with	3	4	6	4	52	Medium	-				
i impacts on loss of addance	degree to which impact can be reversed:	measures inclu	de:				ort. Some of these mitig d, riparian, drainage and					
	degree of impact on irreplaceable resources:						onstruction phase of the					
	Nature of impact:	The Impacts on	the loss of f aqu	uatic biodiversit	y and sensitive t	taxa that are of	conservational concerr	is as a result of:				
	without	3	4	8	4	60	Medium	-				
	with	3	4	6	4	52	Medium	-				
biodiversity and sensitive	degree to which impact can be reversed:	All mitigation measures have been included in the Environmnetal Impact Report. Some of these mitigation measures include: - Ensure that as far as possible all infrastructure is placed outside of sensitive wetland areas, streams and rivers;										

	degree of impact on irreplaceable resources:	Irreplaceable	eplaceable loss of aquatic biodiversity and sensitive taxa will be experienced during the construction phase of the mine									
	Nature of impact:	The impacts on	pacts on the loss of instream flow as a result of:									
	without	4	4 5 8 4 68 High -									
	with	3	3 4 6 4 52 <u>Medium</u> -									
Impacts on loss of instream	degree to which	All mitigation m	easures have b	een included in	the Environmne	tal Impact Repo	rt. Some of these mitig	gation				
flow	impact can be	measures includ	de:									
TIOW	reversed:	- Monitor all aff	ected riparian s	systems for mois	sture stress;							
	degree of impact on		eable loss of instream flow will be experienced when the mine beings the construction activity.									
	irreplaceable	Irreplaceable lo										
	resources:											

Aquatic

			De	commissio	ning Phase	1						
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)		gnificance (E+D+M)*P)	Status (+ve or -ve)	Confidence			
	Nature of impact:	The Impacts on	habitat for flora	al species is as a	result of:							
	without	4	4	8	4	64	High	-				
	with	3	4	6	4	52	Medium	-				
Heavy metal contamination	degree to which impact can be reversed:	measures inclu	re that as far as possible all infrastructures are placed outside of wetland, riparian, drainage and stream areas.									
	degree of impact on irreplaceable resources:	Irreplaceat	Irreplaceable loss of aquatic habitats due to heavy metal contamination that will be experienced during the construction phase of the mine									
	Nature of impact:	The Impacts on	aquatic habitat	is as a result of:								
	without	3	4	8	4	60	Medium	-				
	with	3	4	6	4	52	Medium	-				
Timbacts on loss of addance	degree to which impact can be reversed:	measures inclu	de:				ort. Some of these mitig d, riparian, drainage and					
	degree of impact on irreplaceable resources:		·		·		onstruction phase of the					
	Nature of impact:	The Impacts on	the loss of faqu	uatic biodiversit	y and sensitive t	taxa that are of	conservational concerr	n is as a result of:				
	without	3	4	8	4	60	Medium	-				
	with	3	4	6	4	52	Medium	-				
biodiversity and sensitive	degree to which impact can be reversed:	measures include	de:				ort. Some of these mitig d, riparian, drainage and					

	degree of impact on irreplaceable resources:	Irreplaceable	replaceable loss of aquatic biodiversity and sensitive taxa will be experienced during the construction phase of the mine										
	Nature of impact:	The impacts on	npacts on the loss of instream flow as a result of:										
	without	4	4 5 8 4 68 High -										
	with	3	3 4 6 4 <u>52 Medium</u> -										
Impacts on loss of instream	degree to which	All mitigation m	easures have b	een included in	the Environmne	tal Impact Repo	rt. Some of these mitig	ation					
flow	impact can be	measures includ	de:										
TIOVV	reversed:	-Ensure that as	far as possible a	all infrastructure	es are placed out	tside of drainage	e and river areas.						
	degree of impact on												
	irreplaceable	Irreplaceable lo	able loss of instream flow will be experienced when the mine beings the construction activity.										
	resources:												

Fauna

				Constructio	on Phase						
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)		gnificance (E+D+M)*P)	Status (+ve or -ve)	Confidence		
	Nature of impact:	The Impacts on	habitat for flor	al species is as a	result of:						
	without	2	5	8	5	75	High	-			
	with	3	5	4	5	60	Medium	-			
Impact on faunal habitat	degree to which	 Development 	should be exclu	uded from the ri	iparian habitat,	as indicated on	the sensitivity map.				
	impact can be reversed:		-	• • •	•	red for construct ch as the river a	tion purposes. nd wetland habitat area	as,			
	degree of impact on irreplaceable resources:	Irreplacea	Irreplaceable loss of floral habitats and ecological structure will be experienced when the mine beings the construction activity.								
	Nature of impact:	The Impacts on	floral diversity	is as a result of:							
	without	3	5	6	5	70	High	-			
	with	3	5	4	3	36	Medium	-			
I impact on fallbal diversity	degree to which impact can be reversed:	already disturb	The proposed development footprint areas should remain as small as possible and where possible be confined to ready disturbed areas. Sensitivity map needs to be taken into consideration during the construction phase.								
	degree of impact on irreplaceable resources:	Irreplacea	ible loss of flora	l diversity and e	ecological integr construction a	•	ienced when the mine b	beings the			
	Nature of impact:	The Impacts on	the loss of flora	al species that a	re of conservati	ional concern is	as a result of:				
	without	3	5	4	3	36	Medium	-			
	with	2	5	2	2	18	Low	-			
Timpact on fallnal species of	degree to which						e off limits to all				
conservational concern	impact can be				hicles and perso	nnel.					
	reversed:	 No trapping of 	or hunting of fau	ına is to take pla	ace.						
	degree of impact on irreplaceable resources:	Irreplaceal	Irreplaceable loss of floral species of conservational concern will be experienced when the mine beings the construction activity.								

Fauna

				Operation	al Phase							
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)		gnificance (E+D+M)*P)	Status (+ve or -ve)	Confidence			
	Nature of impact:	The Impacts on	habitat for flora	I species is as a	result of:							
	without	2	5	8	5	75	High	-				
	with	3	5	4	5	60	Medium	-				
Impact on faunal habitat and ecological structure	degree to which impact can be reversed:	 No areas fallir 	evelopment should be excluded from the riparian habitat, as indicated on the sensitivity map. o areas falling outside of the subject property may be cleared for construction purposes. reas of increased ecological importance and sensitivity, such as the river and wetland habitat areas,									
	degree of impact on irreplaceable resources:		Irreplaceable loss of floral habitats and ecological structure will be experienced when the mine beings operating									
	Nature of impact:	The Impacts on	floral diversity i	s as a result of:								
	without	3	5	6	5	70	High	-				
	with	3	5	4	3	36	Medium	-				
Impact on faunal diversity and ecological integrity	degree to which impact can be reversed:	already disturbe	The proposed development footprint areas should remain as small as possible and where possible be confined to lready disturbed areas. Sensitivity map needs to be taken into consideration during the construction phase.									
	degree of impact on irreplaceable resources:	·		,		·	ed when the mine being	s operating.				
	Nature of impact:	The Impacts on	the loss of flora	I species that are	e of conservatio	nal concern is as	a result of:					
	without	3	5	4	3	36	Medium	-				
	with	2	5	2	2	18	Low	-				
Impact on faunal species of	degree to which					as such and be o	off limits to all					
conservational concern	impact can be			operational veh		inel.						
	reversed:	 No trapping o 	r hunting of fau	na is to take plac	ce.							
	degree of impact on irreplaceable resources:	Irreplaceable	loss of floral spe	cies of conserva	tional concern	will be experiend	ced when the mine bein	gs operating.				

{insert specialist filed here}

			De	commissio	ning Phase	,						
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)		gnificance (E+D+M)*P)	Status (+ve or -ve)	Confidence			
	Nature of impact:	The Impacts on	habitat for flora	al species is as a	result of:							
	without	2	5	8	5	75	High	-				
	with	3	5	4	5	60	Medium	-				
iiiipast sii raaiiai riaaitat	degree to which impact can be reversed:	 No areas fallir 	velopment should be excluded from the riparian habitat, as indicated on the sensitivity map. areas falling outside of the subject property may be cleared for construction purposes. as of increased ecological importance and sensitivity, such as the river and wetland habitat areas,									
	degree of impact on irreplaceable resources:		N/A									
	Nature of impact:	The Impacts on	floral diversity i	is as a result of:								
	without	3	5	6	5	70	High	-				
	with	3	5	4	3	36	Medium	-				
Impact on faunal diversity and ecological integrity	degree to which impact can be reversed:	already disturb	ed areas.	·		s small as possib the construction	le and where possible b n phase.	pe confined to				
	degree of impact on irreplaceable resources:				N/A							
	Nature of impact:	The Impacts on	The Impacts on the loss of floral species that are of conservational concern is as a result of:									
	without	3	5	4	3	36	Medium	-				
	with	2	5	2	2	18	Low	-				
i conservational concern	degree to which impact can be reversed:	 All areas of increased ecological sensitivity should be marked as such and be off limits to all unauthorised construction and operational vehicles and personnel. No trapping or hunting of fauna is to take place. 										

Flora

Construction Phase												
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)		gnificance (E+D+M)*P)	Status (+ve or -ve)	Confidence			
	Nature of impact:	The Impacts on	habitat for flora	Il species is as a	result of:							
	without	3	5	6	4	56	Medium	-				
	with	3	4	4	3	33	Medium	-				
	degree to which impact can be reversed:	are to infringe	upon these sens	sitive areas or as	sociated buffer	zones.	all development phases. and it should be ensured					
	degree of impact on irreplaceable resources:	·	Irreplaceable loss of floral habitats will be experienced when the mine beings the construction activity.									
	Nature of impact:	The Impacts on	floral diversity i	s as a result of:								
	without	3	5	6	4	56	Medium	-				
	with	3	3	4	3	30	Low	-				
	degree to which impact can be reversed:	considered to b	A sensitivity map has been developed for the subject property, indicating wetland areas which are onsidered to be of increased ecological importance. It is recommended that this sensitivity map be onsidered during all development phases to aid in the conservation of floral habitat within the subject									
	degree of impact on irreplaceable resources:	·			·		peings the construction a	activity.				
	Nature of impact:	The Impacts on	the loss of flora	I species that are	e of conservatio	nal concern is as	a result of:					
	without	1	5	2	3	24	Low	-				
	with	2	4	2	2	16	Low	-				
I impact on tioral species of	degree to which impact can be reversed:	considered to b	A sensitivity map has been developed for the subject property, indicating wetland areas which are considered to be of increased ecological importance. It is recommended that this sensitivity map be considered during all development phases to aid in the conservation of floral habitat within the subject									
	degree of impact on irreplaceable resources:	Irreplacea	peings the									

Flora

				Operation	al Phase						
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)		gnificance (E+D+M)*P)	Status (+ve or -ve)	Confidence		
	Nature of impact:	The Impacts on	habitat for flora	I species is as a	result of:						
	without	3	5	6	4	56	Medium				
	with	3	4	4	3	33	Medium				
species	degree to which impact can be reversed: degree of impact on irreplaceable	are to infringe - The boundarie	densitive areas that have been identified must be considered throughout all development phases. No activities infringe upon these sensitive areas or associated buffer zones. boundaries of the development footprint areas are to be clearly defined and it should be ensured a lrreplaceable loss of floral habitats will be experienced during the operation of the mine.								
	resources:	The land	<u> </u>								
	Nature of impact:	The Impacts on	floral diversity i			F /	N 4 - 11				
	without	3	5	6	4	56	Medium	-			
	with degree to which	Ü	3 3 4 3 3 Low - A sensitivity map has been developed for the subject property, indicating wetland areas which are								
	impact can be		onsidered to be of increased ecological importance. It is recommended that this sensitivity map be								
	reversed:		onsidered during all development phases to aid in the conservation of floral habitat within the subject								
	degree of impact on irreplaceable resources:						e operation of the mine.				
	Nature of impact:	The Impacts on	floral diversity i	s as a result of:							
	without	1	5	2	3	24	Low	-			
	with	2	4	2	2	16	Low	-			
Impact on floral species of conservational concern	degree to which impact can be reversed:	considered to b	A sensitivity map has been developed for the subject property, indicating wetland areas which are nsidered to be of increased ecological importance. It is recommended that this sensitivity map be nsidered during all development phases to aid in the conservation of floral habitat within the subject								
	degree of impact on irreplaceable resources:	Irreplaceable	loss of floral spe	cies of conserva	tional concern	will be experiend	ced during the operation	of the mine.			

Flora

Decommissioning Phase												
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)		gnificance (E+D+M)*P)	Status (+ve or -ve)	Confidence			
	Nature of impact:	The Impacts on	habitat for flora	I species is as a	result of:							
	without	3	5	6	4	56	Medium	-				
	with	3	4	4	3	33	Medium	-				
	degree to which impact can be reversed:	are to infringe	sensitive areas that have been identified must be considered throughout all development phases. No activities in infringe upon these sensitive areas or associated buffer zones. be boundaries of the development footprint areas are to be clearly defined and it should be ensured									
	degree of impact on irreplaceable resources:		N/A									
	Nature of impact:	The Impacts on	floral diversity i	s as a result of:								
	without	3	5	6	4	56	Medium	-				
	with	3	3	4	3	30	Low	-				
Impacts on floral diversity	degree to which impact can be reversed:	considered to b	A sensitivity map has been developed for the subject property, indicating wetland areas which are onsidered to be of increased ecological importance. It is recommended that this sensitivity map be onsidered during all development phases to aid in the conservation of floral habitat within the subject									
	degree of impact on irreplaceable resources:				N/A							
	Nature of impact:	The Impacts on	floral diversity i	s as a result of:								
	without	1	5	2	3	24	Low	-				
	with	2	4	2	2	16	Low	-				
I impact on tioral species of	degree to which impact can be reversed:	considered to b	e of increased e	cological import	ance. It is recom	nmended that th	tland areas which are his sensitivity map be abitat within the subject					
	degree of impact on irreplaceable resources:		N/A									

Geochemical

Operational Phase											
Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)		•	Status (+ve or -ve)	Confidence			
Nature of impact:	The impact tha	t acid mine drai	nage can have o	n fresh groundv	vater sources i.e	e. pollution.					
without	3	5	8	2	32	Medium	-				
with	2	5	4	2	22	Low	-				
degree to which impact can be reversed:		•			•						
degree of impact on irreplaceable				N/A							
	Nature of impact: without with degree to which impact can be reversed: degree of impact on	Mitigation (E) Nature of impact: The impact tha without 3 with 2 degree to which impact can be reversed: degree of impact on irreplaceable	Mitigation Extent (E) (D) Nature of impact: Without With Continuous monitoring and so neutral. Lime stone of impact on irreplaceable	Mitigation Extent (E) (D) (M) Nature of impact: The impact that acid mine drainage can have of without 3 5 8 with 2 5 4 degree to which impact can be reversed: degree of impact on irreplaceable	Mitigation Extent (E) (D) Magnitude (Probability (P)) Nature of impact: The impact that acid mine drainage can have on fresh groundwithout 3 5 8 2 with 2 5 4 2 degree to which impact can be reversed: degree of impact on irreplaceable Extent (D) Magnitude (Probability (P)) Continuous maintenance and sampling of the water quality multiplication in the water quality multiplication i	Mitigation Extent (E) (D) (M) (M) (P) (S= Nature of impact: The impact that acid mine drainage can have on fresh groundwater sources i.e. without 3 5 8 2 32 with 2 32 with 2 2 22 degree to which impact can be reversed: degree of impact on irreplaceable Extent (D) (M) (M) (P) (S= (S= Nature of impact: The impact that acid mine drainage can have on fresh groundwater sources i.e. and the probability (S= (S= NATURE OF THE IMPACT OF THE IMPAC	Mitigation Extent (E) (D) Magnitude (Probability (S=(E+D+M)*P) Nature of impact: The impact that acid mine drainage can have on fresh groundwater sources i.e. pollution. without 3 5 8 2 32 Medium with 2 5 4 2 22 Low degree to which impact can be reversed: degree of impact on irreplaceable N/A	Mitigation Extent (E) (D) Magnitude (Probability (Sec. E+D+M)*P) Nature of impact: The impact that acid mine drainage can have on fresh groundwater sources i.e. pollution. without 3 5 8 2 32 Medium - with 2 5 4 2 2 Low - Continuous monitoring and sampling of the water quality must be implemented to ensure that the water remains neutral. Lime stone can be used to neutralise the water to prevent the generation of acid water. N/A			

Geochemical

	Decommissioning Phase											
Potential Impact	Mitigation	Extent	Duration	Magnitude	Probability		gnificance	Status	Confidence			
'	ŭ	(E)	(D)	(M)	(P)		(E+D+M)*P)	(+ve or -ve)				
	Nature of impact:	The impact that	t acid mine draii	nage can have o	n fresh groundv	vater sources i.e	e. pollution.					
	without	3	5	8	2	32	Medium	-				
	with	2	5	4	2	22	Low	-				
Acid Mine Drainage	impact can be	ceased to ensur	re that the wate sed to neutralise	er remains neutre the water to pr	al and does not event the gener	contaminate ar	ed even after the operat ny groundwater through ater. Water can be pum o.	seepage. Lime				
	degree of impact on irreplaceable resources:				N/A							

Geology

			(Constructio	n Phase						
		Extent	Duration	Magnitude	Probability	Si	gnificance	Status			
Potential Impact	Mitigation	(E)	(D)	(M)	(P)	(S=((E+D+M)*P)	(+vet or -vet)	Confidence		
	Nature of impact:	The removal of	rocks so that in	frastructure for	the developme	nt of mining infr	astructure can have an i	impact on the n	atural geology of the		
	without	3	3	6	5	60	Medium	-			
	with	2	3	4	5	45	Medium	-			
Removal of overburden and rock for infrastructure development.	degree to which impact can be reversed:	ntial for air									
	degree of impact on irreplaceable resources:										
	Nature of impact:	Blasting will be	required in orde	er make the gro	und level which	will allow the co	onstruction of the mine	and all necessa	ry structures. Ground		
	without	3	3	6	5	60	Medium	-			
	with	2	3	4	5	45	Medium	-			
Blasting and subsequent removal of geology.	degree to which impact can be reversed:		ormulate and implement a blasting design that will ensure the least impact on the environment. ne minimal amount of soils will be stripped on the sections to be blasted in order to reduce the potential for air								
	degree of impact on irreplaceable resources:		The	underlying geol	ogy of the area	will be permane	ntly altered				

Geology

	Operational Phase											
Potential Impact	Mitigation	Extent	Duration	Magnitude	Probability	Si	gnificance	Status	Confidence			
1 otertiai impact	Wittigation	(E)	(D)	(M)	(P)		(E+D+M)*P)	(+ve or -ve)				
	Nature of impact:	The Rietvlei ope	encast operation	n will consist of	one pit. The pit	will be divided	into northern and south	ern Sections by	a single box cut			
	without	3	3	6	5	60	Medium	-				
Permanent loss in a	with	2	3	6	5	55	Medium	-				
natural, non-renewable	degree to which	Formulate and	rmulate and implement a blasting design that will ensure the least impact on the environment.									
resource and associated	impact can be	The minimal an	nount of soils w	ill be stripped o	n the sections to	o be blasted in o	order to reduce the pote	ential for air				
	reversed:	blasts.										
3-1-33	degree of impact on											
irreplaceable The underlying geology of the area will be permanantly altered												
	resources:											

Groundwater

	Construction Phase											
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	,	gnificance (E+D+M)*P)	Status (+ve or -ve)	Confidence			
	Nature of impact:	The clearing of	topsoil for footp	orint areas assoc	ciated with the v	waste site constr	ruction can increase inf	iltration rates of	water to the			
	without	1	2	2	5	25	Low	-				
Decreasing of the soils	with	1	2	2	5	25	Low	-				
buffering capacity and increasing of infiltration rates	buffering capacity and increasing of infiltration impact can be recognised professional civil engineer, as approved by the designer											
	degree of impact on irreplaceable resources:		N/A									
	Nature of impact: During construction phase, it would be necessary to construct the berms to prevent storm water runoff to enter wo											
	without	2	2	4	5	40	Medium	-				
	with	2	2	4	5	40	Medium	-				
_	degree to which impact can be reversed:	•	Mitigation is not possible. Construction phase should be carried out under the supervision of an accredited or ecognised professional civil engineer, as approved by the designer									
	degree of impact on irreplaceable resources:				N/A							
	Nature of impact:	Contamination	of groundwater	can occur as a i	result of ground	lwater seeps stai	nding in the footprint a	rea. The constru	ction activities are			
	without	2	1	6	5	45	Medium	-				
Deterioration of water	with	1	1	2	2	8	Low	-				
degree to which impact can be reversed: degree to which impact can be reversed: degree to which impact can be reversed: Any waste and spills (especially during construction and closure) need to be cleaned up immediately according to the departmental minimum requirements.												

	degree of impact on irreplaceable resources:	The determination chemical spills.	·										
	Nature of impact:	Contamination	of groundwater	can occur as a r	esult of ground	lwater seeps sta	nding in the footprint ar	ea. The constru	uction activities are				
	without	2	3	6	5	55	Medium	1					
Deterioration of water	with	1	2	2	3	15	Low	ı					
quality due to hydrocarbon spills from storage (organic	limpact can bo	,	waste and spills (specially during construction and closure) need to be cleaned up immediately according to the artmental minimum requirements;										
•	degree of impact on irreplaceable resources:	The determina	The determination of water quality as a result in the accidental spills of hydrocarbons and chemical spills.										
	Nature of impact:	Contamination	of groundwater	can occur as a r	esult of ground	lwater seeps sta	nding in the footprint ar	ea. The constru	uction activities are				
Groundwater	without	1	3	6	5	50	Medium	-					
contamination due to	with	1	1	2	2	8	Low	•					
groundwater seeps standing in the	degree to which impact can be reversed:	Groundwater s	roundwater seeps must be dewatered and contained in dirty water dams.										
area.	degree of impact on irreplaceable resources:				N/A								

Groundwater

				Operation	al Phase							
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)		gnificance E+D+M)*P)	Status (+ve or -ve)	Confidence			
	Nature of impact:	Opencast minir	g of coal will re	sult in groundwa	ater inflows into	the pits, which	needs to be pumped or	ut for mine safe	ty. The dewatering of			
	without	3	4	8	5	75	High	-				
	with	3	4	8	5	75	High	-				
Drop of groundwater levels due to open pit dewatering	impact can be reversed:	impact needs to	needs to agree with affected land owners on friendly solutions for issues related to drawdown cone. This ct needs to be monitored. Application for WULA amendment as per DWA requirements must be made for osed new abstraction boreholes if any required.									
	degree of impact on irreplaceable resources:	fo	oundwater levels will drop which can have an irreversible effect on the communities relaying on boreholes water for their livelihood and rivers in the areas may become dry as the water level is depleted									
	Nature of impact:	Overburden du	mping: the expo	sure of rock du	mps, to water a	nd oxygen, may i	result in dirty water tha	it may contamir	nate groundwater			
	without	3	4	4	4	44	Medium	-				
	with	1	1	2	3	12	Low	-				
Deterioration of groundwater quality due to rock dumps.	degree to which impact can be reversed:	designed with t	he appropriate	water barrier sy	stem if required	•	m. Rock dumps areas m th the DWA minimum r 2008					
	degree of impact on irreplaceable resources:		·		N/A							
	Nature of impact:	Exposure of ge	ological strata t	o rainfall in the	opencast areas	will result in dete	erioration in quality of o	groundwater flo	wing into the opencast			
	without	3	4	6	5	65	High	-				
	with	2	3	6	4	44	Medium	-				
groundwater quality due to	degree to which impact can be reversed:	water and oxyg	en with exposed	d strata. Mine w	ater must be co	ntained and/or i	ossible to reduce contact re used as much as possible clean water from the si	sible. Trucks				

	degree of impact on irreplaceable resources:		Contaminate deep aquifer systems									
	Nature of impact:	Coal processing	g: coal will be ex	posed at the wa	shing plant area	to water and ox	ygen, resulting in dirt	y water, and spil	ls/slurry from the site			
	without	3	4	8	5	75	High	-				
	with	2	1	4	2	14	Low	-				
Deterioration of groundwater quality due to coal processing	degree to which impact can be reversed:					g) in the plant ar d rehabilitation s	ea needs to be cleand should follow.	ed up				
	degree of impact on irreplaceable resources:		N/A									
	Nature of impact:	Tailing d	Tailing disposal: residual from coal processing will be disposed of onsite as tailings dam. Tailings constitute a pote									
	without	3	4	8	5	75	High	-				
	with	3	1	2	4	24	Low	-				
Deterioration of groundwater quality due to tailings disposal	degree to which impact can be reversed:	monitoring bor	ings dam must be maintained and operated according to design as approved by DWA. Effectiveness of existing nitoring borehole position should be re-evaluated periodically according DWA requirements. Continuous nitoring should implement.									
	degree of impact on irreplaceable resources:		Groundwater Contamination									
	Nature of impact:	Dirty water fro	m any of these a	ctivities should	be drained, or p	umped (where r	equired) to pollution	control dams. Po	llution control dams,			
	without	3	4	8	4	60	Medium	-				
Deterioration of	with	1	1	2	3	12	Low	-				
groundwater quality due to leaks/spillages from dirty water quality dams and	impact can be reversed:						ed according design a uated periodically acc					
drain	degree of impact on irreplaceable resources:				N/A							
	Nature of impact:		transport: the	exposure of stoc	kpiling and trans			together with hy	drocarbon spills from			
	without		3 4 6 3 39 Medium - 1 2 2 3 15 Low -									
Deterioration of	with											
groundwater quality due to	degree to which impact can be reversed:	Waste needs to notified in the		nd spills cleaned	up immediately	according to th	e WULA conditions. D	WA should be				
waste material.	degree of impact on irreplaceable resources:											

Groundwater

			De	commissio	ning Phase	<u> </u>						
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)		gnificance (E+D+M)*P)	Status (+ve or -ve)	Confidence			
During decommissioning	Nature of impact:	Contaminants f	rom the mine (i	ncluding backfill	led opencast pit	ts and return wa	ter dams) can seep thro	ugh the unsatur	rated zone into the			
handling of waste and	without	3	3	6	4	48	Medium	-				
transport of building	with	2	3	4	4	36	Medium	-				
material can cause various types of spills (domestic waste, sewage water,	degree to which impact can be reversed:	notified in the	event of a spill. F	Rubble from was	ste or contamin	ated areas shou	he WULA conditions. DV Id be dismantled and dis eed to be capped to min	sposed of				
hydrocarbons) which can infiltrate and cause contamination of the groundwater system.	degree of impact on irreplaceable resources:		N/A									
	Nature of impact:	Dewatering wo	uld be stopped	at that stage, an	d open pit floo	ding will occur, a	as recovering of ground	water levels. At	this point in time it is			
	without	3	5	8	5	80	High	-				
	with	2	3	6	4	44	Medium	-				
Flooding and decanting of open pit	degree to which impact can be reversed:	•	nitoring should continue, and numerical groundwater model updated on annual basis. Backfill material to be compacted and covered, and the entire foot print of waste to be shaped for free-draining, rehabilitation to									
	degree of impact on irreplaceable resources:				N/A							

Heritage

Construction Phase												
Potential Impact	Mitigation	Extent	Duration	Magnitude	Probability	Si	gnificance	Status	Confidence			
1 Otential impact	iviitigation	(E)	(D)	(M)	(P)	(S=((E+D+M)*P)	(+ve or -ve)	Connuctice			
	Nature of impact:	As	s the mine comr	nences the grav	es located on th	ne site will be im	pacted upon as a result	of construction	activities.			
	without	1	5	10	5	80	High	-	High			
	with	1	1	2	4	16	Low	-	High			
	degree to which		The graveyards must be mitigated by means of exhumation and relocation. This task is undertaken by forensic									
Destruction of Graveyard	impact can be	archaeologist	s or by reputed i	undertakers who	o are acquainted	d with all the ad	ministrative procedures	and relevant				
	reversed:	legi	slation that hav	e to be adhered	to whenever hu	uman remains ai	re exhumed and relocate	ed.				
	degree of impact on											
	irreplaceable				N/A							
	resources:											

Land Capability

				Constructio	on Phase							
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)		nificance E+D+M)*P)	Status (+ve or -ve)	Confidence			
	Nature of impact:	The land	capability at th	e footprint of th	e box cut will re	duce from mainl	y arable land to none l	because there v	vill be no topsoil.			
	without	1	5	10	5	80	High	-				
	with	1	5	10	5	80	High	-				
Stripping of topsoil at the initial box cut footprint	degree to which impact can be reversed:		All mitigation measures applied on soils will mitigate land capability as far as possible									
	degree of impact on irreplaceable resources:	Т	The Impact will result in a partially irreplaceable loss of resources with regards to topsoil									
	Nature of impact:	S	Soil physical and chemical properties will be adversely affected and will cause some reduction in land capability.									
	without	1	1	8	4	40	Medium	-	, ,			
Possible contamination of	with	1	1	4	1	6	Low	-				
soil by spillages of fuel or oil by mechanical equipment	degree to which impact can be reversed:		All mitigation n	neasures applied	d on soils will mi	tigate land capak	oility as far as possible					
Tr. P	degree of impact on irreplaceable resources:	The impact on	natural, cultura		structures, func to contaminatio	•	sses is totally reversible	e with regards				
	Nature of impact:	The land capab	ility at the footp	orints where top	soil or overburd	en material are s	stockpiled will reduce fi	rom arable and	grazing to none			
	without	1	4	10	5	75	High	-	<u> </u>			
Construction of topsoil,	with	1	1 4 10 5 75 High -									
soft and hard overburden stockpiles during initial box cuts	degree to which impact can be reversed:	All mitigation measures applied on soils will mitigate land capability as far as possible										

	degree of impact on irreplaceable resources:	The impact o	e impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to construction of topsoil									
	Nature of impact:	The current ar	able and grazing	land capability v	will cease comp	letely until the st	ructure is removed and	d the footprint is	rehabilitated.			
	without	1	4	10	5	75	High	-				
	with	1	4	10	5	75	High	-				
Construction of haul roads	degree to which impact can be reversed:		All mitigation n	neasures applied	on soils will m	itigate land capal	oility as far as possible					
	degree of impact on irreplaceable resources:	·		to	construction of	haul roads	sses is totally reversible	Ü				
	Nature of impact:	The curr	ent arable and gr	azing land capal	oility will cease	completely until	the structure is remove	ed and the footp	rint rehabilitated.			
	without	1	4	10	5	75	High	-				
Construction of access	with	1	4	10	5	75	High	-				
roads and diversion of existing access road	degree to which impact can be reversed:		All mitigation measures applied on soils will mitigate land capability as far as possible									
	degree of impact on irreplaceable resources:	The impact o	he impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to construction of access roads									
	Nature of impact:	The land ca	The land capability at the footprint of the dam will reduce from arable land and grazing to none because the structure.									
	without	2	4	10	5	80	High	-				
	with	1	4	10	5	75	High	-				
Construction of Pollution control dam	degree to which impact can be reversed:		All mitigation n	neasures applied	l on soils will m	itigate land capal	pility as far as possible					
	degree of impact on irreplaceable resources:	The impact o		to constr	uction of pollu	tion control dam						
	Nature of impact:		The curre	·	azing land capa		ompletely until the stru	ucture is remove	d.			
Construction of office	without	1	4	10	5	75	High	-				
workshop complex	with	1	4	10	5	75	High	-				
including offices, heavy vehicle workshop, stores, vehicle parking areas	degree to which impact can be reversed:		All mitigation n	neasures applied	l on soils will m	itigate land capal	pility as far as possible					
verticie parking areas	degree of impact on irreplaceable resources:	The impact o	The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to construction of an office workshop complex									

Land Capability

				Operationa	al Phase						
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)		nificance E+D+M)*P)	Status (+ve or -ve)	Confidence		
	Nature of impact:	The land capab	ility at the footp	rint of the open	pit will reduce	from mainly arak	ole land to none becau	ise there will be	no topsoil.		
Progressive stripping of	without	1	5	10	5	80	High	-			
topsoil at opencast	with	1	5	10	5	80	High	-			
footprint and stockpiling thereof before direct replacing is initiated	degree to which impact can be reversed:		All mitigation m	neasures applied	l on soils will mi	tigate land capal	oility as far as possible				
, ,	degree of impact on irreplaceable resources:	The Impact will	npact will result in a partially irreplaceable loss of resources with regards to topsoil								
	Nature of impact:	The land ca	pability at the fo	ootprints where	topsoil or overl	burden material a	are stockpiled will redu	ice from arable	and grazing to none		
Expansion of topsoil, soft	without	1	4	10	5	75	High	-			
and hard overburden	with	1	4	10	5	75	High	-			
stockpiles during the operational phase as open	degree to which impact can be reversed:		All mitigation m	neasures applied	l on soils will mi	tigate land capak	pility as far as possible				
pit expands	degree of impact on irreplaceable resources:	The Impact will	result in a parti	ally irreplaceabl	e loss of resour	ces with regards	to topsoil				
	Nature of impact:	The impacts on	soils as describ	ed above will ca	use a reduction	in land capability	y. However, the post-m	nining land capa	bility will remain arable		
	without	1	5	10	5	80	High	-			
Progressive stripping of	with	1	5	6	4	48	Medium	-			
topsoil at opencast footprint and direct replacing thereof	degree to which impact can be reversed:	All mitigation n	All mitigation measures applied on soils will mitigate land capability as far as possible								

	degree of impact on irreplaceable resources:	The Impact wil	The Impact will result in a partially irreplaceable loss of resources with regards to topsoil The pre-mining land capability at roads and haul road footprints will remain ceased. Altered soil chemical status might										
	Nature of impact:	The pre-mining	gland capability	at roads and ha	ul road footprin	its will remain cea	ased. Altered soil chemi	cal status might	hamper land				
	without	1	4	10	5	75	High	-					
	with	1	4	10	5	75	High	-					
Use of haul roads	degree to which impact can be reversed:		All mitigation m	neasures applied	d on soils will m	itigate land capal	oility as far as possible						
	degree of impact on irreplaceable resources:	·	to construction of haul roads pre-mining land capability will remain ceased. Altered soil chemical status due to leaks or overspills might hamper land capal										
	Nature of impact:	The pre-mining	gland capability	will remain ceas	sed. Altered soil	chemical status	due to leaks or overspill	s might hamper	land capability to				
	without	2	4	10	5	80	High	-					
	with	2	4	10	5	80	High	-					
Use of pollution control dams	degree to which impact can be reversed:	All mitigation measures applied on soils will mitigate land capability as far as possible											
	degree of impact on irreplaceable resources:	The impact or	The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to construction of pollution control dam										
	Nature of impact:		The pre-mining land capability will be influenced negatively.										
	without	1	1	8	4	40	Medium	-					
	with	1	1	4	4	24	Low	-					
Use of diesel, petroleum and oil storage on site	degree to which impact can be reversed:		All mitigation m	neasures applied	l on soils will m	itigate land capal	oility as far as possible						
	degree of impact on irreplaceable resources:			to	the use of hyd	rocarbons	sses is totally reversible	· ·					
	Nature of impact:	Pre-mining lan	d capability will i		Altered soil che		nt hamper land capabilit	y to some exten	t.				
	without	1	4	10	5	75	High	-					
	with	1	4	10	5	75	High	-					
Use of coal stockpiles and ROM tip	degree to which impact can be reversed:		All mitigation m	neasures applied	d on soils will m	itigate land capal	oility as far as possible						
degree of impact on irreplaceable resources: The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to the coal stockpiles													

Land Capability

			De	commissio	ning Phase							
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	(S=	gnificance (E+D+M)*P)	Status (+ve or -ve)	Confidence			
	Nature of impact:	This is not an	impact but a co	ntinuation of m	itigation measu	res. If all mitiga	tion measures for soils	were applied co	rrectly approximately			
	without											
	with	1	5	8	4	56	Medium	+				
Rehabilitation of remaining open pit and final voids	impact can be reversed:	As for soils above. The post-mining land capability will be arable or grazing.										
	degree of impact on irreplaceable resources:		N/A									
	Nature of impact:	This is not an	impact but a co	ntinuation of m	itigation measui	res. If all mitiga	tion measures for soils	were applied co	rectly the pre-mining			
	without											
	with	1	4	6	4	44	Medium	+				
and dumps and rehabilitation of the footprints	degree to which impact can be reversed:	As for soils abo	ve. The post-mi	ning land capabi	lity will be arab	le or grazing.						
	degree of impact on irreplaceable resources:				N/A							
	Nature of impact:	This is not an	impact but a co	ntinuation of m	itigation measu	res. If all mitiga	tion measures for soils	were applied co	rectly the pre-mining			
	without		·						<i>y</i> 1			
Domolishing and	with	1	4	6	4	44	Medium	+				
Trenaniliation of roads and	degree to which impact can be reversed:		As for soils above. The post-mining land capability will be arable or grazing.									

	degree of impact on irreplaceable resources:		N/A									
	Nature of impact:	Removal of po	lluted material a	and levelling of w	vall embankmer	nts. (This is not	an impact but a continua	ation of mitigat	ion measures. The only			
	without											
	with	1	4	6	4	44	Medium	+				
Demolishing of Pollution control dams	degree to which impact can be reversed:		As for soils above. The post-mining land capability will be arable or grazing.									
	degree of impact on irreplaceable resources:		N/A sis not an impact but a continuation of mitigation measures. If all mitigation measures for soils were applied correctly the pre-									
	Nature of impact:	This is not an										
	without											
Demolishing and	with	1	4	6	4	44	Medium	+				
rehabilitation of coal stockpiles and ROM tip area	degree to which impact can be reversed:		As for soils above. The post-mining land capability will be arable or grazing									
	degree of impact on irreplaceable resources:				N/A							
	Nature of impact:	This is not an	impact but a co	ntinuation of mi	tigation measur	res. If all mitiga	tion measures for soils v	vere applied co	rrectly the pre-mining			
	without											
	with	1	4	4	4	36	Medium					
Demolishing and rehabilitation of the office workshop complex	degree to which impact can be reversed:		As for soils above. The post-mining land capability will be arable or grazing.									
	degree of impact on irreplaceable resources:	N/A										

Land Use

				Constructio	on Phase							
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	(S=	ignificance (E+D+M)*P) vation and grazing to no	Status (+ve or -ve)	Confidence			
	Nature of impact:	THE Idia d	e at the lootpin		wiii reddee iroi	irrorestry, cuiti	vacion and grazing to no	ne because the	s will be no topsoil.			
	without	1	5	10	5	80	High	-				
	with	1	5	10	5	80	High	-				
Stripping of topsoil at the initial box cut footprint	degree to which impact can be reversed:		All mitigation r	neasures applied	d on soils will m	tigate land capa	ability as far as possible					
	degree of impact on irreplaceable resources:		·		•		es with regards to topsoi					
	Nature of impact:						and will cause some red	uction in land ca	oability .			
	without	1	1	8	4	40	Medium	-				
Possible contamination of	with	1	1	4	1	6	Low	-				
soil by spillages of fuel or oil by mechanical equipment	degree to which impact can be reversed:		All mitigation r	neasures applied	d on soils will m	tigate land capa	ability as far as possible					
	degree of impact on irreplaceable resources:		impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to contamination of soil									
	Nature of impact:						piled will reduce from fo	orestry, cultivatio	n and grazing to none			
	without	1	4	10	5	75	High	-				
Construction of topsoil, soft		1	4	10	5	75	High	-				
and hard overburden stockpiles during initial box cuts	degree to which impact can be reversed:		All mitigation r	neasures applied	d on soils will m	itigate land capa	ability as far as possible					
	degree of impact on irreplaceable resources:	The impact on	The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to construction of topsoil									
	Nature of impact:	The current ara	ble and grazing	land capability v	will cease compl	etely until the s	tructure is removed and	the footprint is	ehabilitated.			
	without	1	4	10	5	75	High	-				
	with	1	4	10	5	75	High	-				
Construction of haul roads	degree to which impact can be reversed:		All mitigation r	neasures applied	d on soils will m	tigate land capa	ability as far as possible					
	degree of impact on irreplaceable resources:			C	onstruction of h	aul roads	sses is totally reversible v	ŭ				
	Nature of impact:						I the structure is remove	ed and the footpr	int rehabilitated.			
	without	1	4	10	5	75	High	-				
Construction of access	with	1	4	10	5	75	High	-				
roads and diversion of existing access road	degree to which impact can be reversed:		All mitigation r	neasures applied	d on soils will m	tigate land capa	ability as far as possible					
	degree of impact on irreplaceable resources:	The impact on	natural, cultural		structures, funct nstruction of ac	•	sses is totally reversible v	with regards to				
	Nature of impact:	The land use a	it the footprint o	of the dam will re	educe from fore	stry, cultivation	and grazing to none be	cause there will b	e no topsoil. The land			

	without	2	4	10	5	80	High	-					
	with	1	4	10	5	75	High	-					
	degree to which impact can be reversed:		All mitigation measures applied on soils will mitigate land uses as far as possible										
	degree of impact on irreplaceable resources:	The impact on	natural, cultural		structures, funct uction of pollutio	•	ses is totally reversible v	vith regards to					
	Nature of impact:		The curre	nt arable and gr	azing land capab	oility will cease o	ompletely until the stru	cture is remove	ed.				
Construction of office	without	1	4	10	5	75	High	-					
workshop complex	with	1	4	10	5	75	High	-					
including offices, heavy vehicle workshop, stores,	degree to which impact can be reversed:		All mitigation n	neasures applied	d on soils will mi	tigate land capa	bility as far as possible						
vehicle parking areas	degree of impact on irreplaceable resources:	The impact on	e impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to construction of an office workshop complex										

Land Use

	Operational Phase											
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	(S=(gnificance (E+D+M)*P)	Status (+ve or -ve)	Confidence			
	Nature of impact:	The land use at	the footprint of	fthe open pit wi	II reduce from f	orestry, cultivat	ion and grazing to none	because there	will be no topsoil.			
Progressive stripping of	without	1	5	10	5	80	High	-				
topsoil at opencast	with	1	5	10	5	80	High	-				
footprint and stockpiling thereof before direct replacing is initiated	degree to which impact can be reversed:		All mitigation measures applied on soils will mitigate land uses as far as possible									
, ,	degree of impact on irreplaceable resources:	The Impact will	Impact will result in a partially irreplaceable loss of resources with regards to topsoil									
	Nature of impact:	The land use at	the footprint w	here topsoil and	d overburden m	aterial are stock	piled will reduce from f	orestry, cultivat	ion and grazing to none			
Expansion of topsoil, soft	without	1	4	10	5	75	High	-				
and hard overburden	with	1	4	10	5	75	High	-				
stockpiles during the operational phase as open	degree to which impact can be reversed:		All mitigation	n measures appl	ied on soils will	mitigate land us	ses as far as possible					
pit expands	degree of impact on irreplaceable resources:	The Impact will	result in a parti	ally irreplaceabl	e loss of resour	ces with regards	to topsoil					
	Nature of impact:	A reduction in I	A reduction in land capability will reduce crop production potential and subsequent crop yields. However, the pre-mini									
	without	1	5	10	5	80	High	-				
Progressive stripping of	with	1	5	6	4	48	Medium	-				
topsoil at opencast footprint and direct replacing thereof	degree to which impact can be reversed:	All mitigation n	neasures applied	d on soils will mi	tigate land uses	as far as possib	le					

	degree of impact on irreplaceable resources:	The Impact wil	he Impact will result in a partially irreplaceable loss of resources with regards to topsoil he pre-mining land capability at roads and haul road footprints will remain ceased. Altered soil chemical status might										
	Nature of impact:	The pre-mining	gland capability	at roads and ha	ul road footprin	nts will remain cea	ased. Altered soil chemi	cal status might h	namper land				
	without	1	4	10	5	75	High	-					
	with	1	4	10	5	75	High	-					
Use of haul roads	degree to which impact can be reversed:		All mitigation m	neasures applied	d on soils will m	itigate land capal	pility as far as possible						
	degree of impact on irreplaceable resources:	·	ne impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to construction of haul roads e pre-mining land capability will remain ceased. Altered soil chemical status due to leaks or overspills might hamper land cap										
	Nature of impact:		gland capability			chemical status	due to leaks or overspill	s might hamper l	and capability to				
	without	2	4	10	5	80	High	-					
	with	2	4	10	5	80	High	-					
Use of pollution control dams	degree to which impact can be reversed:		All mitigation measures applied on soils will mitigate land capability as far as possible										
	degree of impact on irreplaceable resources:	The impact or	The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to construction of pollution control dam										
	Nature of impact:		The pre-mining land use will be influenced negatively.										
	without	1	1	8	4	40	Medium	-					
	with	1	1	4	4	24	Low	-					
Use of diesel, petroleum and oil storage on site	degree to which impact can be reversed:		All mitigation	n measures app	ied on soils will	mitigate land use	es as far as possible						
	degree of impact on irreplaceable resources:			to	the use of hydi	rocarbons	sses is totally reversible	J					
	Nature of impact:	Pre-mining lan	d use will remair		d soil chemical s		per land uses to some e	extent.					
	without	1	4	10	5	75	High	-					
	with	1	4	10	5	75	High	-					
Use of coal stockpiles and ROM tip	degree to which impact can be reversed:		All mitigation	n measures app	ied on soils will	mitigate land use	es as far as possible						
	degree of impact on irreplaceable resources: The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to the coal stockpiles												

Land Use

			De	commissio	ning Phase						
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)		gnificance (E+D+M)*P)	Status (+ve or -ve)	Confidence		
	Nature of impact:	This is not an ir	npact but a con	tinuation of mit	igation measure	s. Possible post	-mining land uses will be	e crop farming,	forestry or grazing. The		
	without										
5 1 1 1111 11 6 1 1 1	with	1	5	8	4	56	Medium	+			
Rehabilitation of remaining open pit and final voids	degree to which impact can be reversed:		As for soi	ls above. The po	ost-mining land (use will be cultiv	vation or grazing.				
	degree of impact on irreplaceable resources:		N/A								
	Nature of impact:	This is not an	impact but a co	ntinuation of m	itigation measui	es. If all mitiga	tion measures for soils v	vere applied co	rrectly the pre-mining		
	without										
Removal of all stockpiles	with	1	4	6	4	44	Medium	+			
and dumps and rehabilitation of the footprints	degree to which impact can be reversed:	As for soils abo	ve. The post-mii	ning land use wi	ll be cultivation	or grazing.					
	degree of impact on irreplaceable				N/A						
	resources: Nature of impact:	This is not an	impact but a co	ntinuation of m	itination measur	os If all mitina	tion measures for soils v	vere annlied co	rrectly the pre-mining		
	without	THIS IS HOLDIN	impact but a co	Titiliuation of ill	linganon measui	Cs. II all Tilltiga	1011 11100301 03 101 30113 1	уст с аррпец со	rectly the pre-mining		
	with	1	4	6	4	44	Medium	+			
Demolishing and rehabilitation of roads and haul roads	degree to which impact can be reversed:		As for soi		ost-mining land		ation or grazing.	·			

,											
irreplaceable				N/A							
resources:											
	This is not an	impact but a co	ntinuation of mi	tigation measu	res. If all mitiga	tion measures for soil	ls were applied co	orrectly the pre-mining			
without											
with	1	4	6	4	44	Medium	+				
degree to which											
impact can be		As for soi	Is above. The po	st-mining land	use will be cultiv	vation or grazing.					
reversed:											
degree of impact on		N/A									
irreplaceable											
resources:											
Nature of impact:	This is not an	is not an impact but a continuation of mitigation measures. If all mitigation measures for soils were applied correctly the									
without											
with	1	4	6	4	44	Medium	+				
degree to which											
impact can be	As for soils above. The post-mining land uses will be grazing or cultivation.										
reversed:											
degree of impact on											
irreplaceable				N/A							
resources:											
Nature of impact:	This is not an	impact but a co	ntinuation of mi	itigation measu	res. If all mitiga	tion measures for soil	ls were applied co	orrectly the pre-mining			
without											
with	1	4	4	4	36	Medium					
degree to which											
impact can be		As for soils above. The post-mining land use can be cultivation or grazing.									
reversed:											
degree of impact on											
irreplaceable	N/A										
resources:											
	Nature of impact: without with degree to which impact can be reversed: degree of impact on irreplaceable resources: Nature of impact: without with degree to which impact can be reversed: degree of impact on irreplaceable resources: Nature of impact on irreplaceable resources: Nature of impact on irreplaceable resources: Nature of impact: without with degree to which impact can be reversed: degree of impact on irreplaceable	irreplaceable resources: Nature of impact: without with 1 degree to which impact can be reversed: degree of impact on irreplaceable resources: Nature of impact: without with 1 degree to which impact can be reversed: degree of impact on irreplaceable resources: Nature of impact: This is not an without with 1 degree to which impact can be reversed: degree of impact on irreplaceable resources: Nature of impact: This is not an without with 1 degree to which impact can be reversed: degree of impact on irreplaceable reversed: degree of impact on irreplaceable	irreplaceable resources: Nature of impact: without with degree to which impact can be reversed: degree of impact: Nature of impact: This is not an impact but a co without with 1	irreplaceable resources: Nature of impact: This is not an impact but a continuation of mi without with 1 4 6 6 degree to which impact can be reversed: degree of impact on irreplaceable resources: Nature of impact: This is not an impact but a continuation of mi without with 1 4 6 degree to which impact can be reversed: degree of impact on irreplaceable resources: Nature of impact: As for soils above. 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The post-mining land undersources: Nature of impact: Without With 1 4 4 4 4 As for soils above. The post-mining land undersources: Nature of impact: Without With 1 4 4 4 4 As for soils above. The post-mining land undersources: NATIONAL THE MINING WAS AS FOR SOILS above. The post-mining land undersources: NATIONAL THE MINING WAS AS FOR SOILS above. The post-mining land undersources: NATIONAL THE MINING WAS AS FOR SOILS above. The post-mining land undersources: NATIONAL THE MINING WAS AS FOR SOILS above. The post-mining land undersources: NATIONAL THE MINING WAS AS FOR SOILS above. The post-mining land undersources: NATIONAL THE MINING WAS AS FOR SOILS above. The post-mining land undersources: NATIONAL THE MINING WAS AS FOR SOILS above. The post-mining land undersources: NATIONAL THE MINING WAS AS FOR SOILS above. The post-mining land undersources: NATIONAL THE MINING WAS AS FOR SOILS above. The post-mining land undersources: NATIONAL THE MINING WAS AS FOR SOILS above. The post-mining land undersources:	irreplaceable resources: Nature of impact: Nature of impact: Without With 1 4 6 4 44 degree to which impact can be reversed: degree of impact on irreplaceable resources: Nature of impact: Nature of impact on irreplaceable resources: Nature of impact: Nature of impact on irreplaceable Nature of impact on irreplaceable Nature of impact: Nature of impact on impact but a continuation of mitigation measures. If all mitigation mea	Irreplaceable resources: Nature of impact: Without With As for soils above. The post-mining land use will be cultivation or grazing. Notative of impact on irreplaceable resources: Notative of impact on impact: Without Notative of impact on impact: Without Notative of impact: Notative of impact on impact: Without Notative of impact: Notative of impact on irreplaceable resources: Notative of impact: Notative of impact on impact but a continuation of mitigation measures. If all mitigation measures for soil without Notative of impact on impact but a continuation of mitigation measures. Notative of impact on impact but a continuation of mitigation measures. Notative of impact on impact but a continuation of mitigation measures. Notative of impact on impact but a continuation of mitigation measures. Notative of impact on impact but a continuation of mitigation measures. Notative of impact on impact but a continuation of mitigation measures. Notative of impact on impact but a continuation of mitigation measures. Notative of impact on impact but a continuation of mitigation measures. Notative of impact on impact but a continuation of mitigation mea	Irreplaceable resources: Nature of impact: Without With As for soils above. The post-mining land use will be cultivation or grazing. N/A This is not an impact but a continuation of mitigation measures. If all mitigation measures for soils were applied or without With As for soils above. The post-mining land use will be cultivation or grazing. N/A Resources: Nature of impact: Without With As for soils above. The post-mining land uses will be grazing or cultivation. Resources: Nature of impact on impact but a continuation of mitigation measures. If all mitigation measures for soils were applied or without With As for soils above. The post-mining land uses will be grazing or cultivation. Reversed: degree of impact on irreplaceable resources: Nature of impact: Without This is not an impact but a continuation of mitigation measures. If all mitigation measures for soils were applied or without With As for soils above. The post-mining land uses will be grazing or cultivation. Resources: Nature of impact: Without As for soils above. The post-mining land use can be cultivation or grazing. Resources: NATURE of impact: Without As for soils above. The post-mining land use can be cultivation or grazing. Resources: NATURE of impact on irreplaceable Resources: NATURE of impact on impact but a continuation of mitigation measures. If all mitigation measures for soils were applied or without NA Resources: NATURE of impact on impact but a continuation of mitigation measures. If all mitigation measures for soils were applied or impact on impact but a continuation of mitigation measures. If all mitigation measures for soils were applied or impact but a continuation of mitigation measures. If all mitigation measures or soils were applied or impact but a continuation of mitigation measures. If all mitigation measures or soils were applied or impact but a continuation of mitigation measures. If all mitigation measures or soils were applied or impact but a continuation of mitigation measures. If all mitigation			

Noise

				Constructio	on Phase						
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)		gnificance (E+D+M)*P)	Status (+ve or -ve)	Confidence		
	Nature of impact:	The use of Drill	ing and shovel r	machinery durin	g the constructi	on of the open o	cast pit where this equip	ment is located	at the nearest point to		
	without	1	1	4	3	18	Low	-			
	with	1	1	2	3	12	Low	-			
Construction of the Opencast Pit	degree to which impact can be reversed:	low when mitig '- As the site is	to the level of noise and few dwellings indicated in close proximity of the site the impact is considered to be when mitigation measures such as maintenance of the machinery is implemented. The site is proposed to be located in a rural setting with minimal noise therefore an increase in noise level from construction of the mine would be seen to be irreversible								
	degree of impact on irreplaceable resources:				N/A						
	Nature of impact:	The cons	struction noise o	an have an effe	ct on livestock a	ınd wildlife as th	ey are sensitive to noise	e, blasting and g	round vibrations		
	without	1	1	4	3	18	Low	-			
	with	1	1	2	3	12	Low	-			
Construction Noise and its effect on Livestock	limpact can be										
	degree of impact on irreplaceable resources:				N/A						

Noise

				Operation	al Phase							
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	(S=	gnificance (E+D+M)*P)	Status (+ve or -ve)	Confidence			
	Nature of impact:	The tra	insport of coal fr	rom the mine to	the coal treatm	nent plant along	a stretch of gravel road	through the cei	ntre of the site.			
	without	1	4	4	3	27	Low	-				
	with	1	4	0	3	15	Low	-				
Transport of Coal from the	degree to which	As the site is p	proposed to be le	ocated in a rura	I setting with mi	inimal noise the	refore an increase in noi	ise level from				
mine to the treatment	impact can be	the transp	the transportation of coal can be seen to be unavoidable. To mitigate this impact vehicle routes need to be									
plant	reversed:			specifically cl	nosen and silend	ers should be fi	tted.					
	degree of impact on											
	irreplaceable				N/A							
	resources:											
	Nature of impact:		Gener	al operational n	oise from the m	nining operation	to extract the coal from	ground level.				
	without	1	4	4	3	27	Low	-				
	with	1	5	2	2	16	Low	-				
Operational phase of the Opencast Pit	degree to which impact can be reversed:	The duration a of mitigation										
	degree of impact on irreplaceable resources:				N/A	noise monitorin						
	Nature of impact:		Bla	asting may be us	sed in order to e	extract the coal f	from the mine during its	operation				
	without	2	4	8	4	56	Medium	-				
	with	2	4	6	2	24	Low	-				
Blasting for the operation	degree to which		•	,	•	•	dary noise vibrations wh					
of the Opencast Mine	impact can be	an effect on hu	mans and infras	tructure. With a	ppropriate migi	ration strategies	these impacts can be m	ninimised.				
of the Openicast Millie	reversed:	- By calculating	g the charge size	to keep air blas	t and ground vi	bration levels be	elow pre-determined acc	ceptable				
	degree of impact on irreplaceable resources:				N/A							

	Nature of impact:	E	Blast vibrations of	an be measured	l through Peak F	Particle Velocity	(PPV) and can result in	damage to infr	astructure			
	without	2	4	4	3	30	Low	-				
	with	2	1	2	2	10	Low	•				
Vibration on Surrounding	degree to which			•		•	for cosmetic damages. T					
Structures	impact can be						is likely to only cause co					
Structures	reversed:	structural dama	tructural damage to the nearest farm house. Mitigation measures that could be implemented include:									
	degree of impact on irreplaceable resources:				N/A							
	Nature of impact:	The ope	erational noise c	an have an effec	t on livestock a	nd wildlife as th	ey are sensitive to noise	, blasting and g	round vibrations			
	without	1	4	4	3	27	Low	•				
	with	1	4	2	3	21	Low	•				
Operational Noise and its effect on Livestock	degree to which impact can be reversed:		Livestock is not predicted to be severely affected by the operational noise produced from the mine. Mitigation measures can include Regular monitoring of the exposed livestock to ascertain if there are any adverse reactions									
	degree of impact on irreplaceable resources:		N/A									
	Nature of impact:	E	Blasting can have	e an effect on liv	estock and wild	llife as they are s	sensitive to noise, blasti	ng and ground	vibrations			
	without	2	4	8	4	56	Medium	-				
	with	2	4	4	3	30	Low	-				
Blast Noise and its effect on Livestock	degree to which impact can be reversed:						ng events. Mitigation me ere are any adverse read					
	degree of impact on irreplaceable resources:				N/A							

Noise

	Decommissioning Phase										
Potential Impact	Mitigation	Extent	Duration	Magnitude	Probability		gnificance	Status	Confidence		
r oteritiai impaet	Wittigation	(E)	(D)	(M)	(P)	•	(E+D+M)*P)	(+ve or -ve)			
	Nature of impact:	Noise related t	to the decommis	ssioning and reh	abilitation of th	e opencast pit c	nce operation has cease	ed and all the co	oal has been extracted.		
	without	1	2	2	3	15	Low	•			
	with	1	2	2	3	15	Low	-			
Decommissioning of the	degree to which										
Opencast Pit	impact can be			No mitigati	on measures ca	ın be implement	ed				
•	reversed:										
	degree of impact on										
	irreplaceable				N/A						
	resources:										

Socio-Economic

			(Constructio	on Phase						
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	1	gnificance (E+D+M)*P)	Status (+ve or -ve)	Confidence		
	Nature of impact:	It is anticipated	that approxima	itely 80 employi	ment opportuni	ties will be gene	rated through the const	truction phase.	Skilled labour is likely		
	without	2	1	6	3	27	Low	+			
Employment opportunities	with	2	1	8	4	44	Medium	+			
for local labour resulting from the construction phase.	degree to which impact can be reversed:	where appropri	as possible, labour will be sourced from the local, nearby formal (not squatter) settlements and Middleburg, e appropriate skills exist. actors must make all efforts to obtain services and consumables from local entrepreneurs.								
'	degree of impact on irreplaceable resources:		N/A								
	Nature of impact:	As a result of bl	asting and the c	onstruction act	ivities both nois	e and dust will b	e expected which may	have an impact	on the health of local		
Increased health and safety	without	3	1	8	4	48	Medium	-			
issues resulting from noise	with	2	1	6	3	27	Low	-			
emissions, dust emissions and trucks using the roads	degree to which impact can be reversed:	The mine will ro	outinely inspect	the boundary fe	ences around th	e mine.	tion, operation and clos				
during the construction phase.	degree of impact on irreplaceable resources:		·	·	N/A						
	Nature of impact:	The increased j	ob opportunitie	s from the const	truction of the r	nine may lead to	an influx of people fro	m outside the lo	ocal areas. Due to		
	without	3	2	8	4	52	Medium	-			
Unmanaged contractors	with	3	2	4	2	18	Low	-			
might cause an increase in influx of job seekers and the establishment of	degree to which impact can be reversed:	Contractors must make all efforts to obtain services and consumables from local entrepreneurs. No informal settlements will be allowed on mine property. No accommodation will be permitted onsite.									

	degree of impact on irreplaceable resources:		N/A									
	Nature of impact:	The potential in	nflux of labour a	nd iob-seekers i	nto the area co	uld result in heal	th concerns around co	mmunicable dise	eases, such as HIV/			
	without	4	2	8	4	56	Medium	-	54303 54011 43 1 11 V			
Construction and closure	with	3	2	6	3	33	Medium	-				
	degree to which						HIV/AIDs that can be bi	rought in by				
	impact can be	external labour						· g. · · · · - y				
	reversed:		e made availabl	e to all staff and	l workers.							
theft, etc.	degree of impact on											
	irreplaceable				N/A							
	resources:											
	Nature of impact:	Due to the rura	e to the rural nature of the area, and the change in nature of the area during construction and the opposition expr									
Th	without	2	1	8	4	44	Medium	-	j			
The presence of non- residents, perceived	with	2	1	4	2	14	Low	-				
"outsiders" and contractors	degree to which	As far as possible, labour will be sourced from the local, nearby formal (not squatter) settlements and Middleburg,										
within the local	impact can be	where appropr	nere appropriate skills exist.									
environment could cause	reversed:	The contractor	is to ensure tha	t all staff onsite	will be in posse	ssion of a South	African identity docum	nent, or				
localised social tension	degree of impact on											
localised social terision	irreplaceable				N/A							
	resources:											
	Nature of impact:	The proposed r	he proposed mine is unlikely to provide significant skills development opportunities during the construction phase o									
	without	2	1	6	3	27	Low	+				
Growth in skills	with	2	1	8	4	44	Medium	+				
unskilled labour from	degree to which impact can be reversed:	•	kills development programmes will be set up so as to improve the skills of the labour force he Social Labour Plan must be followed to ensure the development of skilled labour									
	degree of impact on											
	irreplaceable											
	resources:											
	Nature of impact:						the economy is based o	on the degree to	which value added			
	without	3	2	6	4	44	Medium	+				
Opportunities for	with	3	2	8	5	65	High	+				
entrepreneurial	degree to which		Non-core activities related to the construction phase of the project will be identified and out-sourced to local									
development as a result of	impact can be		service providers, where the skills exist. The mine will ensure that a transportation system is implemented from the potential housing areas to the mine to									
the construction activities.	reversed:	The mine will e	nsure that a trai	nsportation syst	em is implemer	nted from the po	tential housing areas to	o the mine to				
	degree of impact on											
	irreplaceable		N/A									
	resources:											

Socio-Economic

				Operationa	al Phase						
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)		nificance E+D+M)*P)	Status (+ve or -ve)	Confidence		
	Nature of impact:	There are a nur	nber of opportu	nities for the pr	oposed mine to	contribute towar	rds the development o	of local services a	nd business		
	without	2	4	6	3	36	Medium	+			
The development of the	with	2	4	8	5	70	High	+			
mine will have a positive impact on the economic development	degree to which impact can be reversed:		mine must provide opportunities in order for small businesses to grow such as transport, cleaners etc mine should encourage local business to provide services for the mine to allow for economic development of local area								
·	degree of impact on irreplaceable resources:	N/A									
	Nature of impact:	It is anticipated	that approxima	itely 60 employr	ment opportuni	ties will be genera	ated through the oper	ational phase. Sk	tilled labour is likely to		
	without	2	4	6	3	36	Medium	+			
Employment opportunities	with	2	4	8	5	70	High	+			
for local labour resulting from the operational	degree to which impact can be reversed:	where appropri	s far as possible, labour will be sourced from the local, nearby formal (not squatter) settlements and Middleburg, here appropriate skills exist. ontractors must make all efforts to obtain services and consumables from local entrepreneurs.								
phase.	degree of impact on irreplaceable resources:				N/A		·				
	Nature of impact:	As a result of bl	asting and the c	perational activ	vities both noise	and dust will be	expected which may h	ave an impact oi	n the health of local		
Increased health and safety	without	3	4	8	5	75	High	-			
issues resulting from noise	with	2	4	6	3	36	Medium	-			
emissions, dust emissions and trucks using the roads	degree to which impact can be reversed:	The mine will ro	outinely inspect	the boundary fe	ences around th	e mine.	ion, operation and clos ity to identify areas of				

phase.	degree of impact on				N/A							
	irreplaceable				N/A							
	resources:	The increased i	oh opportunitio	a fram the aner	ation of the min	a may load to a	n influx of noonlo from	outside the less	Largas Dua ta limitad			
	Nature of impact:	-					n influx of people from	outside the loca	rareas. Due to ilmited			
Linnanagad contractors	without	3	4	8	4	60	Medium	-				
Unmanaged contractors	with		4	6	2	26	Low	-				
=	degree to which					imables from lo	cal entrepreneurs.					
influx of job seekers and	impact can be			e allowed on mir	ne property.							
the establishment of	reversed:	No accommoda	accommodation will be permitted onsite. N/A									
informal settlements	degree of impact on											
	irreplaceable											
	resources:											
	Nature of impact:			_			Ith concerns around co	mmunicable dise	eases, such as HIV/			
	without	4	4	8	4	64	High	-				
•	with	•	3 4 6 3 39 Medium -									
	degree to which		ployment of mostly local labour could reduce the chances of the spread of HIV/AIDs that can be brought in by									
contribute to social ills,	impact can be	external labour										
such as HIV/ AIDS, petty	reversed:	Condoms will be made available to all staff and workers.										
crime, stock theft, etc.	degree of impact on											
	irreplaceable				N/A							
	resources:											
	Nature of impact:						g operation of the min	e and the opposi	tion expressed by			
The presence of non-	without	2	4	8	4	56	Medium	-				
residents, perceived	with	2	4	4	2	20	Low	-				
"outsiders" and contractors	degree to which			e sourced from t	the local, nearby	y formal (not sq	uatter) settlements an	d Middleburg,				
within the local	impact can be	where appropr										
environment could cause	reversed:	The contractor	is to ensure tha	t all staff onsite	will be in posses	ssion of a South	African identity docun	nent, or				
localised social tension	degree of impact on											
	irreplaceable				N/A							
	resources:											
	Nature of impact:		nine is likely to p	provide significa			ities during the constru	uction phase of t	he project which will			
	without	2	4	6	3	36	Medium	+				
Growth in skills	with	2	4	8	4	56	Medium	+				
development resulting	degree to which	Skills developm	ent programme	s will be set up s	so as to improve	e the skills of the	e labour force					
from the employment of	impact can be			followed to ens								
unskilled labour from	reversed:	5 000101 2000	a Idii iiidat be		5 1110 4010101	orit or omitou	- GA G GI					
nearby communities	degree of impact on											
	irreplaceable											
	resources:											
	Nature of impact:	The degree to v	which downstrea	am economic im	pacts provide lo	ocal stimulus to	the economy is based	on the degree to	which value added			

	without	3	4	6	4	52	Medium	+	
Opportunities for	with	3	4	8	5	75	High	+	
Opportunities for entrepreneurial	degree to which	Non-core activi	ties related to t	he operational p	hase of the pro	ject will be iden	tified and out-sourced t	o local service	
development as a result of	impact can be	providers, wher	e the skills exist	t.					
the operational activities.	reversed:	The mine will er	nsure that a trai	nsportation syst	em is implemen	ited from the po	tential housing areas to	the mine to	
the operational activities.	degree of impact on								
	irreplaceable				N/A				
	resources:								

Socio-Economic

			De	commissio	ning Phase	9							
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	(S=	gnificance (E+D+M)*P)	Status (+ve or -ve)	Confidence				
	Nature of impact:	It is anticipated	that employme	ent opportunitie	s will be genera	ated through the	e decommissioning phase	se. Skilled labou	r is likely to be sourced				
	without	2	1	6	3	27	Low	+					
Employment opportunities	with	2	1	8	4	44	Medium	+					
for local labour resulting from the decommissioning phase.	impact can be reversed:	where appropr	iate skills exist.				quatter) settlements an ocal entrepreneurs.	d Middleburg,					
	degree of impact on irreplaceable resources:		N/A result of the decommissioning activities both noise and dust will be expected which may have an impact on th										
	Nature of impact:		ne decommissio		oth noise and d			n impact on the	health of local people				
Increased health and safety	without	3	1	8	4	48	Medium	-					
issues resulting from noise	with	2	1	6	3	27	Low	-					
emissions, dust emissions and trucks using the roads	degree to which impact can be reversed: degree of impact on	The mine will re	PPE must be made available to all employees and contractors, during construction, operation and closure. The mine will routinely inspect the boundary fences around the mine. Public awareness programmes will be developed by the mine with the community to identify areas of particular risk										
	irreplaceable resources:		N/A										
	Nature of impact:	The potential in	nflux of labour a	nd job-seekers	into the area co	ould result in hea	alth concerns around co	ommunicable dis	seases, such as HIV/				
	without	4	2	8	4	56	Medium	ı					
Construction and closure	with	3	2	6	3	33	Medium	-					
activities could contribute	degree to which	Employment of	mostly local lal	oour could redu	ce the chances	of the spread of	HIV/AIDs that can be b	prought in by					
to social ills, such as HIV/	impact can be	external labour											
AIDS, petty crime, stock	reversed:	Condoms will b	e made availabl	e to all staff and	d workers.								
	degree of impact on irreplaceable resources:		N/A										
	Nature of impact:	The proposed r	elopment oppor	tunities during the deco	ommissioning ph	hase of the project due							

	without	2	1	4	3	21	Low	+			
Growth in skills	with	2	1	6	3	27	Low	+			
development resulting	degree to which	Skills developm	ent programme	s will be set up	so as to improv	e the skills of th	e labour force and prep	are their staff			
from the employment of	impact can be	to find alternat	ive jobs								
unskilled labour from	reversed:	The Social Labo	ur Plan must be	e followed to en	sure the develo	pment of skilled	l labour				
· ·	degree of impact on										
	irreplaceable										
	resources:										
	Nature of impact:	The degree to v	vhich downstre	am economic in	npacts provide l	ocal stimulus to	the economy is based of	on the degree to	which value added		
	without	3	2	6	4	44	Medium	+			
()nnortunities for	with	3	2	8	5	65	High	+			
entrenreneurial	degree to which	Non-core activi	ties related to t	he construction	phase of the pr	oject will be ide	entified and out-sourced	to local			
development as a result of	impact can be	service provide	rs, where the sl	tills exist.							
the construction activities.	reversed:	The mine will e	nsure that a tra	nsportation sys	tem is implemei	nted from the p	otential housing areas t	o the mine to			
the construction detivities.	degree of impact on										
	irreplaceable		N/A								
	resources:										

Soil

	Construction Phase											
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)		gnificance E+D+M)*P)	Status (+ve or -ve)	Confidence			
	Nature of impact:	1. Complete rer	moval of all tops	oil at boxcut fo	otprint. 2. Stripp	oing of soil result	in mixing of the soil's A	A and B-horizons	s with subsequent			
	without	1	5	10	5	80	High	-				
	with	1	5	10	5	80	High	-				
Stripping of topsoil at the initial box cut footprint	degree to which impact can be reversed:	topsoil. 2. Top	osoil will be strip	oped and stockp	oiled based on so	oil type groups (r	ower quality subsoil to red soils, yellow brown lity as far as possible as	soils and grey				
	degree of impact on irreplaceable resources:		The Impact will result in a partially irreplaceable loss of resources with regards to topsoil									
	Nature of impact:	Possible conta	amination of soi	ls by spillages o	f fuel or oil by m	nechanical equip	ment. Soil physical and	chemical prope	rties will be adversely			
	without	1	1	8	4	40	Medium	-				
	with	1	1	4	4	24	Low	-				
soil by spillages of fuel or oil by mechanical equipment	degree to which impact can be reversed:	All accidental t	•	•	•	•	ited soil will be dispose an approved facility.	d at a suitable				
	degree of impact on irreplaceable resources:	The impact on	natural, cultura		structures, fund to contaminatio		sses is totally reversible	e with regards				
	Nature of impact:	"Creation of to	osoil and soft ar	d hard overbur	den stockpiles d	uring constructi	on of box cuts.					
	without	1	4	10	5	75	High	-				
Construction of topsoil,	with	1	4	10	5	75	High	-				
stockpiles during initial box	· ·	•		•		•	topsoil and overburden will be removed as soc	•				
cuts	reversed:											

	degree of impact on irreplaceable resources:	The impact o	e impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to construction of topsoil										
	Nature of impact:	Construction of	of haul roads. The	e upper 300 mm	(A-horizon) wil	I be graded side v	vard and placed as a b	erm along the h	aul road edge. The B-				
	without	1	4	10	5	75	High	-					
	with	1	4	10	5	75	High	-					
Construction of haul roads	degree to which impact can be reversed:		1. The soil's A-h	norizon will be st	ored as a berm	along the edges t	for later replacement.						
	degree of impact on irreplaceable resources:	·		to	construction of	haul roads	sses is totally reversible	J					
	Nature of impact:	Construction	truction of roads. The upper approximately 150 mm of the A-horizon may be graded away and placed as a berm ald										
	without	1	4	10	5	75	High	-					
Construction of access	with	1	4	10	5	75	High	-					
roads and diversion of existing access road	degree to which impact can be reversed:		1. The soil's A-horizon will be stored as a berm along the edges for later replacement.										
	degree of impact on irreplaceable resources:	The impact o	he impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to construction of access roads										
	Nature of impact:	"Stripping of	"Stripping of topsoil at the footprint of the pollution control dam where the upper 300 mm will be stockpiled and th										
	without	2	4	10	5	80	High	-					
	with	1	4	10	5	75	High	-					
Construction of Pollution control dam	degree to which impact can be reversed:		nents will be line	d with a polyeth	ylene membrar	ne to prevent soil	final rehabilitation. 2. pollution by low quali thylene membrane.						
	degree of impact on irreplaceable resources:	·		to constr	uction of pollu	tion control dam	sses is totally reversible	, and the second					
	Nature of impact:	The construct	ion of structures		soil surface by r		e, tar or paving. 1. Com	npaction of the s	oil surface for building				
Construction of office	without	1	1 10 0 11911										
workshop complex	with	1	4	10	5	75	High	-					
including offices, heavy vehicle workshop, stores, vehicle parking areas	degree to which impact can be reversed:			Contain	the footprint as	s far as possible.							
venicle parking areas	degree of impact on irreplaceable resources:	The impact o	n natural, cultura			e workshop compl	sses is totally reversible lex	e with regards					

Soil

	Operational Phase										
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)		gnificance E+D+M)*P)	Status (+ve or -ve)	Confidence		
	Nature of impact:	"Progressive sti	ripping of topsoi	il at the opencas	st footprint and	stockpiling there	eof.				
Progressive stripping of	without	1	5	10	5	80	High	-			
topsoil at opencast	with	1	5	10	5	80	High	-			
footprint and stockpiling thereof before direct replacing is initiated	degree to which impact can be reversed:	topsoil. 2. Top	osoil will be strip	pped and stockp	iled based on so	oil type groups (r	ower quality subsoil tog ed soils, yellow brown lity as far as possible as	soils and grey			
. 0	degree of impact on irreplaceable resources:	·	Impact will result in a partially irreplaceable loss of resources with regards to topsoil								
	Nature of impact:	"	expansion of top	soil and soft an	d hard overburd	den stockpiles du	uring operational phase	as the open pit	expands.		
Expansion of topsoil, soft	without	1	4	10	5	75	High	-			
and hard overburden	with	1	4	10	5	75	High	-			
stockpiles during the operational phase as open	degree to which impact can be reversed:		All mitigation m	neasures applied	l on soils will mi	tigate land capa	bility as far as possible				
pit expands	degree of impact on irreplaceable resources:	The Impact will	result in a parti	ally irreplaceabl	e loss of resour	ces with regards	to topsoil				
	Nature of impact:	"Progressive sti	ripping of topsoi	il at the opencas	t footprint and	direct replacing	on backfilled opencast	areas.			
	without	1	5	10	5	80	High	-			
Progressive stripping of	with	1	5	6	4	48	Medium	-			
topsoil at opencast footprint and direct replacing thereof	degree to which impact can be reversed:	topsoil (Figu	Soils will be stripped at specified depths in order to prevent stripping of lower quality subsoil together with topsoil (Figure 6 and Table 8 in soil report). Copen pits will be backfilled and spoil surfaces will be levelled and shaped to a free draining topography.								

	degree of impact on irreplaceable resources:	The Impact wi	e Impact will result in a partially irreplaceable loss of resources with regards to topsoil se of haul roads. 1. All impacts on soils during the construction phase will remain during the operational phase. 2										
	Nature of impact:	"Use of haul ro	oads. 1. All impac	ts on soils durin	ng the constructi	on phase will re	main during the opera	tional phase. 2. (Coal and coal dust				
	without	1	4	10	5	75	High	-					
	with	1	4	10	5	75	High	-					
Use of haul roads	degree to which impact can be reversed:	Frequent dust	suppression by	water trucks. Im	nplementation of haul roads		orm water managemer	nt system along					
	degree of impact on irreplaceable resources:		e impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to construction of haul roads										
	Nature of impact:		nance and use of pollution control dams. 1. All impacts on soil during the construction phase will remain through										
	without	2	4	10	5	80	High	-					
	with	2	4	10	5	80	High	-					
Use of pollution control	degree to which		ntinuous monitoring of pollution control dam levels in order to prevent overspills. 2. Frequent inspections to										
dams	impact can be reversed:	iden	identify leaks and immediate reparation thereof. 3. Immediate removal of sludge after overspills.										
	degree of impact on irreplaceable resources:	The impact o	n natural, cultura		l structures, fund ruction of pollut	•	sses is totally reversib	le with regards					
	Nature of impact:		Possible contamination of soils by spillages of diesel, petroleum and oil will alter soil chemical status neg										
	without	1	1	8	4	40	Medium	-					
	with	1	1	4	4	24	Low	-					
Use of diesel, petroleum and oil storage on site	degree to which impact can be reversed:	1. All accider	ntal fuel spillages	will be cleaned	up immediately disposal faci		ed soil will be remove	d to a suitable					
	degree of impact on irreplaceable resources:			to	the use of hydr	ocarbons	sses is totally reversib	Č					
	Nature of impact:		_				the construction phas	e will remain dur	ing the operational				
	without	1	4	10	5	75	High	-					
	with	1	1 4 10 5 75 High -										
Use of coal stockpiles and ROM tip	degree to which impact can be reversed:		Imple	ementation of a	n efficient storm	water manager	nent system						
	degree of impact on irreplaceable resources:	The impact o	The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to the coal stockpiles										

Soil

	Decommissioning Phase										
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)		gnificance (E+D+M)*P)	Status (+ve or -ve)	Confidence		
	Nature of impact:	"Replacem	ent of stockpile	d topsoil on bac	kfilled remainin	ng open pit area	and possibly some final	voids. (This is r	not an impact but a		
	without										
	with	1	5	8	4	56	Medium	+			
open pit and final voids	impact can be reversed:	shaped to a free draining topography. 2. Topsoil will be dumped in sufficient quantities to render a soil depth after levelling which is similar to the stripping depth (Table 8). 3. Soil amelioration and re-vegetation will be done as									
	degree of impact on irreplaceable resources:		N/A								
	Nature of impact:	Complete	removal of all s	tockpile topsoil	and dumped ov	erburden mater	ial. (This is not an impac	t but a continua	ation of mitigation		
	without										
	with	1	4	6	4	44	Medium	+			
and dumps and rehabilitation of the footprints	degree to which impact can be reversed:	rehabilitation o	f the open pit. T	he stockpile foo	tprints will be t	horoughly clear	ckpiled topsoil will be us ned and then ripped to a ultiple tooth implement	lleviate soil			
	degree of impact on irreplaceable resources:				N/A						
	Nature of impact:	Complete rem	oval of all roads	s building mater	ial. (This is not a	an impact but a	continuation of mitigation	on measures. Th	ne only impact may be		
	without										
Demolishing and	with	1	4	6	4	44	Medium	+			
rehabilitation of roads and	1. The footprint will be thoroughly cleaned and all road building material will be removed to a suitable disposal facility. 2. The footprint will be ripped to alleviate soil compaction. After ripping the rough surface will be smoothen.										

	degree of impact on											
	irreplaceable				N/A							
	resources:				14//1							
	Nature of impact:	Removal of po	lluted material a	and levelling of v	vall embankme	nts. (This is not a	an impact but a continua	ation of mitigat	ion measures. The only			
	without			<u> </u>				J. J.	, , , , , , , , , , , , , , , , , , ,			
	with	1	4	6	4	44	Medium	+				
Demolishing of Pollution	degree to which	1. The dam floo	or will be thorou	ughly cleaned ar	d all polluted m	naterial will be i	emoved to a suitable di	sposal facility.				
control dams	impact can be	2. Soil material	oil material used for wall embankments will be spread over the floor of the borrow pit. 3. The stockpiled topsoil									
	reversed:	(A-horizon) wi	horizon) will be replaced on the surface. 4. Compaction will be alleviated by ripping. 5. Soil amelioration will be									
	degree of impact on		у тричу									
	irreplaceable		N/A									
	resources:											
	Nature of impact:	Complete rem	mplete removal of all structures and foundations. (This is not an impact but a continuation of mitigation measures									
	without											
Demolishing and	with	1	4	4	4	36	Medium	+				
rehabilitation of the office	degree to which						ed. 2. The footprint will					
workshop complex	impact can be						int will be graded to a sr					
Workshop complex	reversed:	4. The topsoil	will be amelior	ated according t	o soil chemical	analysis. 5. The	footprint will be re-vege	etated with a				
	degree of impact on											
	irreplaceable				N/A							
	resources:											
	Nature of impact:	Removal of all	coralliferous m	aterial. (This is r	ot an impact bu	ut a continuatio	n of mitigation measure	s. The only imp	act may be spillages of			
	without											
Demolishing and	with	1	4	6	4	44	Medium	+				
	degree to which		1. The footprint will be thoroughly cleaned and all coralliferous and soft overburden material will be removed to a discard dump or suitable disposal facility. 2. The footprint will be loosened with a multiple tooth implement to a									
stockpiles and ROM tip	impact can be			•			•					
area	reversed:	depth of at lea	ast 300 mm to a	lleviate compac	tion. 3. The tops	soil will be repla	ced and ameliorated acc	cording to soil				
	degree of impact on											
	irreplaceable		N/A									
	resources:											

Surface Water

				Constructio	on Phase							
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	(S=	gnificance (E+D+M)*P)	Status (+ve or -ve)	Confidence			
	Nature of impact:	The clearing of	topsoil for foot	print areas asso	ciated with con	struction activit	ies (waste site, water co	ontrol infrastruc	tures, cut and fill) can			
	without	1	2	2	5	25	Low	-				
	with	1	1	2	3	12	Low	-				
disturbance	degree to which impact can be reversed:		Water management infrastructure (separate clean and dirty water systems) should be in place before the commencement of construction activities. Compaction of the area during base preparation.									
	degree of impact on irreplaceable resources:		N/A The design of the site infrastructure (rock dumps, discard dump, washing crushing plant) should take into account the specificatio									
	Nature of impact:	The design					crushing plant) should	take into accou	nt the specification			
	without	1	2	2	3	15	Low	-				
	with	1	1	2	2	8	Low	-				
storm water runoff	degree to which impact can be reversed:	pending on who	loping of the area as to allow for free runoff, either towards pollution controls structure or away from the site ending on whether the water is clean or dirty. Management of speed versus velocity aspects if and when required s to prevent erosion gullies from forming. Inspections and maintenance.									
	degree of impact on irreplaceable resources:				N/A							
	Nature of impact:	The constructi	on activities are	likely to be ass	ociated with ac	cidental spills of	hydrocarbons (oils, die	esel etc.) from th	e construction vehicles			
	without	3	1	6	4	40	Medium	-				
Water quality deterioration		1	1	2	2	8	Low	-				
from construction vehicles,	impact can be reversed:	Hydrocarbon p	lydrocarbon product storage area should be bounded, and collected rainwater to be removed to keep the area dry									
	degree of impact on irreplaceable resources:				N/A							
	Nature of impact:	The construct	The construction activities are likely to be associated with potentially hazardous chemical spills during the construction phase. Such spil									

	without	2	3	6	4	44	Medium	-				
Water quality deterioration	with	1	1	2	3	12	Low	-				
due to seepage from	degree to which	Waste classifica	ation is required	l in order to infl	uence design pa	rameters and m	nake recommendations	with regards to				
construction waste site to	impact can be	design and r	nonitoring requ	irements. These	must be adher	ed to in order to	o prevent or minimise s	eepage from				
the surface water resource	Ireversed.		waste disposal areas.									
the surface water resource	degree of impact on		·									
	irreplaceable				N/A							
	resources:											

Surface Water

	Operational Phase											
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)		gnificance (E+D+M)*P)	Status (+ve or -ve)	Confidence			
	Nature of impact:	During mining p	hase, surface w	ater runoff may	enter the oper	ating (open pit, o	crushing/washing plant,	stockpiles, etc.) and waste disposal			
	without	3	4	6	5	65	High	-				
	with	1	2	2	3	15	Low	-				
storm water runoff quality	degree to which impact can be reversed:	crushing areas,	arate clean water from dirty water at upstream and divert clean water around the operating area (screening and ching areas, stockpile area) and disposal areas as to prevent it from entering these areas. Contaminated run-off er from the operating area should be drained to a pollution control dam. Waste classification and management									
	degree of impact on irreplaceable resources:		N/A									
	Nature of impact:	Water (ground)	water, rainfall) v	vill need to be p	umped from the	e pit and ground	water, and store at the	surface, for mir	ne safety. Water from			
	without	2	2	2	4	24	Low	-				
	with	1	1	2	3	12	Low	-				
_	degree to which impact can be reversed:				•	•	fective clean and dirty v rehabilitating the close	•				
	degree of impact on irreplaceable resources:				N/A							
	Nature of impact:	The mining faci	lity can result in	pollution of sto	rm water that f	loods the site du	uring the rainy seasons					
	without	2	2	2	4	24	Low	-				
<u> </u>	with	1	1	2	2	8	Low	-				
	degree to which impact can be reversed:	Contaminated storm water from operating area (mining pit, crushing and screening, stockpiling) should be drained to a pollution controlled dam, which should be design according to appropriate regulations.										

stockpiling) areas	degree of impact on irreplaceable resources:		N/A As a result in the loss of vegetation and natural flow lines from the development of the mine the rerouting of runoff can result in surface									
	Nature of impact:	As a result in	the loss of vege	tation and natu	ral flow lines fro	om the developr	nent of the mine the rer	outing of runof	f can result in surface			
	without	1	2	2	4	20	Low	-				
	with	1	1	2	2	8	Low	-				
Erosion due to surface water runoff rerouting	degree to which impact can be reversed:	Equip tr	enches and gulli	es with energy c	lissipater, and c	conduct frequent	t inspections and mainte	nances.				
	degree of impact on irreplaceable resources:											
	Nature of impact:	As a result in	·				nent of the mine the rero	outing of runoff	can result in siltation			
	without	1	2	2	4	20	Low	-				
	with	1	1	2	2	8	Low	-				
Siltation due to surface water runoff rerouting	degree to which impact can be reversed:	Suspende	Suspended solids should filter out (silt trap) before dirty water enters pollution control dams, and regular inspections and maintenances should follow.									
	degree of impact on irreplaceable resources:											
	Nature of impact:	Stockpiling and	I transport: the	exposure of stoo	kpiling and trar	nsporting of coal	, to water and oxygen, to	ogether with hy	drocarbon spills from			
	without	2	3	6	4	44	Medium	-	·			
	with	1	1	2	3	12	Low					
Water quality deterioration due spill and/or leaking of hydrocarbon	degree to which impact can be reversed:	Hydrocarbon p	product storage	area should be I	oounded, and c	ollected rainwat	er to be removed to kee	p the area dry				
	degree of impact on irreplaceable resources:											
	Nature of impact:	Septic tank: spi	illage from septi	c may constitute	e source of bact	teriological conta	amination to surface wa	ter. If not prope	erly managed.			
	without	2	3	6	4	44	Medium	-				
	with	1	2	2	3	15	Low	-				
Water quality deterioration due to septic tank	degree to which impact can be reversed:			age to the mur	nicipality sewage	works						
	degree of impact on irreplaceable resources:											
	Nature of impact:	Tailing disposa	iling disposal: residual from coal processing will be disposed of onsite at designated are or in pit. Such disposal when not handled									

	without	2	3	6	5	55	Medium	_				
	with	2	2	2	3	18	Low	_				
Water quality deterioration	degree to which	_	ation is required	_	Ü	1.4	ake recommendations	with regards to				
due to seepage from waste	impact can be		•				prevent or minimise se	_				
disposal facility to the	reversed:				waste disposal			g - · · · · · · ·				
surface water resource	degree of impact on				'							
	irreplaceable											
	resources:											
	Nature of impact:	Coal processing	j: coal will be ex	posed at the wa	shing plant area	a to water (with	chemical) and oxygen, i	resulting in dirty	y water, and			
	without	2	3	6	4	44	Medium	-				
Water quality deterioration	with	2	1	2	3	15	Low	-				
due to spillage, seepage	degree to which	Waste classifica	ation is required	in order to influ	uence design pa	rameters and m	ake recommendations v	with regards to				
and/or leak from waste	impact can be	design, and	design, and monitoring requirements. These must be adhered to in order to prevent or minimise seepage from									
disposal, storage, handling	reversed:		waste disposal areas.									
facility to surface water	degree of impact on											
	irreplaceable											
	resources:											
	Nature of impact:	Dirty water from	m any of these a	ctivities should	be drained, or p	oumped (where i	required) to pollution c	ontrol dams. Po	llution control dams,			
	without	2	3	6	5	55	Medium	-				
Water quality deterioration		2	1	2	3	15	Low	-				
due to Spillage of dirty	degree to which	All the dif	ferent compone	ents of the dirty	water control sy	ystem should be	design according to ap	propriate				
water from dirty water	impact can be		•	•	-		nd updated regularly.					
control system (Dams,	reversed:											
trenches, berms etc)	degree of impact on											
	irreplaceable											
	resources:											

Surface Water

				sedqo	lwa				
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	(S=(I	nificance E+D+M)*P)	Status (+ve or -ve)	Confidence
	Nature of impact:	As a result in	the loss of vege	etation and natu	iral flow lines from	om the developn	nent of the mine the r	erouting of runot	ff can result in surface
	without	1	2	2	4	20	Low	-	
	with	1	1	2	2	8	Low	-	
runoff speed and velocity	degree to which impact can be reversed:		should consist o er over the reha		the site using ap	opropriately chos	sen indigenous grasses	. Control of	
	degree of impact on irreplaceable resources:								
	Nature of impact:	As a result in	the loss of vege	tation and natu	ral flow lines fro	om the developm	nent of the mine the re	erouting of runof	f can result in siltation
	without	1	2	2	4	20	Low	-	
	with	1	1	2	2	8	Low	-	
Siltation related to erosion	degree to which impact can be reversed:			vater system should implemen			ssociated with mining	on site	
	degree of impact on irreplaceable resources:								
	Nature of impact:	Activities suc	h as covering of	the spillages wi	th sand and col	lection and possi	bly treatment etc. are	likely to be asso	ciated with accidental
	without	3	3	6	5	60	Medium	-	
Dotorioration of water	with	1	2	2	3	15	Low	-	
quality due to spill and/or leaking from hydrocarbon	degree to which impact can be reversed:	Hydrocarbon p	roduct storage	area should be b	oounded, and co	ollected rainwate	r to be removed to ke	ep the area dry	
	degree of impact on irreplaceable resources:								

	Natura of impact	Activities are	h as sovering of	the chilleges wi	th cond and sal	laction and near	sibly treatment ata are	likoly to be seen	ciated with accidental
	Nature of impact:						sibly treatment etc. are	irkely to be asso	ciated with accidental
	without	3	3	6	5	60	Medium	-	
Deterioration of water	with]	2	2	3	15	Low	- 11	
quality due to seepage	degree to which						nake recommendations		
and/or spillage from waste	impact can be	~		ements. These m	nust be adhered	to in order to p	revent or minimise see	page from	
site facility	reversea:	waste disposal	areas.						
	degree of impact on								
	irreplaceable								
	resources:								
	Nature of impact:	Dewatering wo	ould be stopped	at that stage, a	nd open pit floo	ding will occur,	as recovering of ground	dwater levels, an	d subsequent decant to
	without	4	4	8	5	80	High	-	
	with	3	2	4	4	36	Medium	-	
Deterioration of the surface	degree to which	Docant water s	hould be contai	nod (pollution c	ontrol dam) or t	troated Cleans	· water runoff from decai	nt aroa must ho	
water quality due	impact can be		sloping the deca				water runon nom uecai	iit area iiiust be	
decanting water	reversed:	maximised by s	sioping the deca	iit area , to iiiii	irriise irrigi ess or	Storm water.			
	degree of impact on								
	irreplaceable								
	resources:								
	Nature of impact:	Flooding can o	ccur as a result	of the decanting	process under	taken during the	closure phase. The eff	ect of this decar	it may only be observed
	without	3	4	6	4	52	Medium	-	
	with	1	1	4	3	18	Low	-	
Flood risk due decant to	degree to which								
	impact can be	Decant water s	hould be drain t	o a specific poll	ution control da	am.			
surface	reversed:								
	degree of impact on								
	irreplaceable								
	resources:								
	Nature of impact:	Erosion can od	cur as a result o	of the decanting	process undert	aken during the	closure phase. The effe	ect of this decan	t may only be observed
	without	1	2	2	4	20	Low	-	
	with	1	1	2	2	8	Low	-	
	degree to which	Water run-off	direction, and ve	elocity as well as	the geophysica	al conditions of	the rehabilitated areas:	should be	
Elosion due decant water	impact can be						gement tool. The rehal		
runoff	· •			•	,		gone toon moronar		
reversed: should be covered of vegetation and maintained									

Topography

				Constructio	on Phase						
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	(S=0	gnificance (E+D+M)*P)	Status (+ve or -ve)	Confidence		
	Nature of impact:	The developme	nt of the constru	uction infrastruc	ture (building st	tructures, access	roads, fencing, etc.) will	l create a visible	, artificial landscape for		
	without	2	2	8	4	48	Medium	-			
The development of the	with	2	2	6	4	40	Medium	-			
construction infrastructure (building structures, access	reversed:	communicated	e areas on which new infrastructure will be placed, constructed, installed or sunk will be clearly demarcated and nmunicated to contractors and staff members. structures and infrastructure must be designed and operated with the aim of closure in mind.								
	degree of impact on irreplaceable resources:		The natural topography of the area will be permanently altered tural lie of the land may be altered through site clearing and the removal of topsoil for the development of surface in								
	Nature of impact:	The natural lie	of the land may	be altered throu	gh site clearing	and the removal	of topsoil for the develo	opment of surfa	ce infrastructure that is		
	without	1	2	8	4	44	Medium	-			
	with	1	2	6	4	36	Medium	-			
Disturbance of natural lie of the land resulting from site clearing and topsoil removal	impact can be reversed:	limit site distur	oance.		-		and areas to be construc mining area appear more				
	degree of impact on irreplaceable resources:					will be permane					
	Nature of impact:	The surface infr					the topography and fre	e drainage of th	e area.		
	without	1	2	8	5	55	Medium	-			
	with	1	2	6	4	36	Medium	-			
existing flow of topography and the free drainage of the area resulting from surface	impact can be	Incorporation o encourage drain Monitoring me									
infrastructure. degree of impact on irreplaceable The natural topography of the area will be permanently altered resources:											

Topography

	Operational Phase											
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	(S=	gnificance (E+D+M)*P)	Status (+ve or -ve)	Confidence			
	Nature of impact:	The developme	nt of the pit will	permanently al	ter the topograp	hy and disrupt t	he natural vegetation a	nd features pres	ent on site.			
	without	1	5	10	5	80	High	-				
	with	1	5	6	5	60	Medium	-				
The development of the pit will result in the altering of the topology in this area	degree to which impact can be reversed:	· ·	current replacement of overburden and topsoil and resultant re-vegetation during the operational phase may e improvements for natural surface flow dynamics and topography.									
	degree of impact on irreplaceable resources:		The	natural topogra	phy of the area	will be permane	ntly altered					
	Nature of impact:	This alteration of	of the land will h	ave further imp	acts on surface v	water flow dyna	mics as the natural drain	nage pattern is d	isrupted. Alteration of			
	without	1	5	8	5	70	High	-				
	with	1	5	6	5	60	Medium	-				
The development of the pit	degree to which						during the operational	phase may				
	impact can be			surface flow dyi								
water flow dynamics	reversed:	Design appropr	iate storm mana	igement measur	es that allows of	drainage of the s	ite.					
	degree of impact on irreplaceable resources:			. •		will be permane	·					
	Nature of impact:	The establishm	ent of the surfac	e infrastructure	will lead to a wi	de visual envelo	pe on receptors and a c	hange in the nat	ural topography of the			
	without	1	5	8	5	70	High	-				
Infrastructure that is	with	1	5	6	5	60	Medium	-				
utilised on the site will alter	degree to which					ed, installed or	sunk will be clearly dem	arcated and				
the topology and surface	impact can be			nd staff membe								
water flow of the area	reversed:	All structures a	nd infrastructure	e must be design	ed and operate	d with the aim c	of closure in mind.					
	degree of impact on irreplaceable resources:	The natural topography of the area will be permanently altered										

Topography

Decommissioning Phase											
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)		gnificance (E+D+M)*P)	Status (+ve or -ve)	Confidence		
	Nature of impact:	The decommiss	sioning of the pi	t once all coal ha	as been extracte	ed and the LOM	has been exceeded				
	without	1	5	10	5	80	High	-			
	with	1	5	6	5	60	Medium	-			
Decommissioning of the pit	degree to which impact can be reversed:	•	nal replacement of overburden, topsoil and resultant re-vegetation will result in the restoration of natural e flow dynamics and topography.								
	degree of impact on irreplaceable resources:		The	natural topogra	phy of the area	will be permane	ently altered				
	Nature of impact:	The decommiss	sioning of all infr	rastructure on si	te and the reve	gitation and rest	toration once all structu	ıres have been r	emoved.		
	without	1	5	8	5	70	High	-			
	with	1	3	6	5	50	Medium	-			
Decommissioning of infrastructure	degree to which impact can be reversed:	Re-vegetation of in this area.	e-vegetation of the site and replacement of topsoil in order to encourage the regrowth of the natural topography								
	degree of impact on irreplaceable resources:										

Traffic

				Constructio	on Phase							
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	(S=(gnificance (E+D+M)*P)	Status (+ve or -ve)	Confidence			
	Nature of impact:	The increase of	construction ve	hicles in and are	ound the site ma	ay contribute to	the increased road usa	ge leading to tra	affic congestion. The			
	without	2	1	4	4	28	Low	-				
	with	2	1	2	3	15	Low	-				
irainio gonionation ai cama	degree to which impact can be reversed:	07:00am and 09	truction vehicles using the roads will be scheduled to avoid peak-hour traffic i.e. avoid period between m and 09:00am as well as the period between 16:00pm and 18:00pm ade of the roads would aid in faster moving vehicles and potholes would be avoided									
	degree of impact on irreplaceable resources:		N/A									
	Nature of impact:	The movement	of construction	vehicles along u	unpaved roads s	surrounding and	within the mining area	would contribu	te significantly to the			
	without	3	2	8	4	52	Medium	-				
	with	2	2	4	3	24	Low	-				
	degree to which impact can be reversed:					the generation of the generati	of dust eneration of dust					
	degree of impact on irreplaceable resources:				N/A							
	Nature of impact:	The increased u	The increased use of construction vehicles during the development of the mine can have an impact on pedestrian safety that uses the roads.									
	without	1	1	6	3	24	Low	-				
	with	1	1	2	2	8	Low	-				
TODELATION OF VEHICLES MAY	degree to which impact can be reversed:	 Construction vehicles must only use the roads during daylight hours. No vehicles should be operational from 6pm to 6am. Construction vehicles should put their headlights on when accessing the roads where pedestrians are commonly 										

	degree of impact on												
	irreplaceable				N/A								
	resources:												
	Nature of impact:	The increased i	oad use of cons	truction vehicle	s could result in	an increase in r	oad accidents on the ro	oads leading awa	ay or towards the mine.				
	without	1	1	6	4	32	Medium	-					
	with	1	1	2	3	12	Low	-					
Construction vehicles may	degree to which	■ In the event	e event that the accident involves another vehicle the relevant authorities are to be notified of the incident ponsive action implemented based on legal and insurance requirements										
result in an increase in road	impact can be	and responsive	action impleme	ented based on l	egal and insura	nce requiremen	ts						
accidents	reversed:	■ All construct	onstruction and maintenance vehicles travelling on public roads must adhere to the relevant traffic laws and										
	degree of impact on												
	irreplaceable		N/A										
	resources:												
	Nature of impact:	The increased t	raffic congestio	n on the surrou	nding road netw	orks can lead to	the deterioration of th	ne roads if unma	naged. The roads to the				
	without	3	2	6	5	55	Medium	-					
Increase in traffic could	with	2	2	4	3	24	Low	-					
	degree to which	vobieles	a mine mast be	responsible for	continuca main	tenance on the i	Todas asca by the const	iruction					
result in the deterioration	impact can be	vehicles.			h . l	and the desired the							
of the surrounding road	reversed:	■ Upgrade of the	ograde of the roads must occur so that potholes would be avoided and that the roads are safer to use										
network.	degree of impact on												
	irreplaceable		N/A										
	resources:												

Traffic

				Operationa	al Phase							
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)		gnificance [E+D+M)*P)	Status (+ve or -ve)	Confidence			
	Nature of impact:	The increase of	operational veh	nicles in and aro	und the site ma	y contribute to t	the increased road usag	e leading to tra	ffic congestion. The			
	without	3	4	6	4	52	Medium	-				
Traffic generation around	with	2	4	4	4		Medium	-				
the site from transportation and	degree to which impact can be reversed:	07:00am and 09	rational vehicles using the roads will be scheduled to avoid peak-hour traffic i.e. avoid period between am and 09:00am as well as the period between 16:00pm and 18:00pm rade of the roads would aid in faster moving vehicles and potholes would be avoided									
·	degree of impact on irreplaceable resources:		N/A									
	Nature of impact:	Dust may be a p	may be a problem at the access to the site if there will be coal transported by truck along the R555. Fine coal do									
	without	3	4	8	5	75	High	-				
	with	2	4	4	3	30	Low	-				
	degree to which impact can be reversed:	■ Haul routes sl	nould be spraye	d with water re	gularly to avoid	the generation	•	particulates.				
	degree of impact on irreplaceable resources:				N/A							
	Nature of impact:	The increased r	oad use of heav	y vehicles could	result in an inc	rease in road ac	cidents leading away or	towards the m	ine. Accidents could			
	without	3	4	6	4	52	Medium	-				
	with	3	4	4	2		Low	-				
	degree to which						ies are to be notified of	the incident				
in an increase in road	impact can be				-	nce requirement						
accidents	reversed:	■ All operationa	al vehicles trave	lling on public re	oads must adhe	re to the relevar	nt traffic laws and regul	ations to avoid				

	degree of impact on irreplaceable resources:	The increased t	N/A ne increased traffic congestion on the surrounding road networks can lead to the deterioration of the roads if unm									
Increase in traffic could result in the deterioration	Nature of impact: without with degree to which impact can be reversed:	2 vehicles.	4	8 6 csponsibile for c	4 . 	60 24 teriance on the	Medium Low todas used by the open at the roads are safer to	- attoriai	naged. The roads to			
	degree of impact on irreplaceable resources:		N/A									
	Nature of impact: without with degree to which impact can be reversed:	2 2 The speed in Clear signage	4 should be used	6 2 arrounding the to clearly indica	4 3 Ite the rules of	48 24 the road.	Medium Low Table 17 distance for operational	-	n see along the major			
	degree of impact on irreplaceable resources:	T1			N/A	. 611						
	Nature of impact: without	ne increased u	se of operation	ai venicies durin 6	ig the developh 3	nent of the mine	e can have an impact or Medium	n pedestrian safe	ety that uses the roads.			
	with	2	4	2	2	16	Low	-				
impact nedestrian safety	degree to which impact can be reversed:	■ Operational v to 6am. ■ Operational v										

Traffic

	Decommissioning Phase											
Potential Impact	Mitigation	Extent	Duration	Magnitude	Probability		gnificance	Status	Confidence			
1 Sterrilar Impast	TVIITIGATION	(E)	(D)	(M)	(P)	(S=((E+D+M)*P)	(+ve or -ve)	00111001100			
	Nature of impact:	The movement	of decommission	oning vehicles al	long haul roads	surrounding and	d within the mining area	a would contrib	ute significantly to the			
	without	3	4	6	4	52	Medium	-				
	with	2	4	4	2	20	Low	•				
Creation of dust as a result	degree to which	■ Haul routes s	Haul routes should be sprayed with water regularly to avoid the generation of dust									
of the movement of	impact can be	■ All decommis	sioning vehicles	should abide b	y speed limits to	reduce excessi	ive generation of dust					
decommissioning vehicles	reversed:											
	degree of impact on											
	irreplaceable				N/A							
	resources:											

Traffic

			(Cumulative	Impacts							
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	1	gnificance (E+D+M)*P)	Status (+ve or -ve)	Confidence			
	Nature of impact:	The Rietvlei are	a is dominated	by a number of	coal mines. Wit	h the developme	ent of the proposed min	ne there would b	oe an increase usage of			
	without	3	4	6	4	52	Medium	-				
	with	3	4	4	3	33	Medium	-				
Congestion on the roads in surrounding area	reversed:	07:00am and 0	ining vehicles using the roads should be scheduled to avoid peak-hour traffic i.e. avoid period between m and 09:00am as well as the period between 16:00pm and 18:00pm ade of the roads would aid in faster moving vehicles and potholes would be avoided									
	degree of impact on irreplaceable resources:				N/A							
	Nature of impact:	Dust may be a	oroblem due to	the cumulative (generation of du	ust from the oth	er mines located in the	areas created b	y the transportation of			
	without	3	4	8	5	75	High	-				
	with	3	4	4	3	33	Medium	-				
	degree to which impact can be reversed:	■ All mining vehicles should abide by speed limits to reduce excessive generation of dust										
	degree of impact on irreplaceable resources:				N/A							

Visual

				Constructio	on Phase							
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)		gnificance (E+D+M)*P)	Status (+ve or -ve)	Confidence			
	Nature of impact:	Construction	vehicles used du	uring the develo	pment of the m	ine will result in	an increase of dust whi	ch can affect th	e visual aspects of the			
	without	1	1	8	4	40	Medium	-				
	with	1	1	4	3	18	Low	-				
Vehicles	degree to which impact can be reversed:	Mitigati	igation measure can significantly reduce the impact of dust through road wetting and speed limits.									
	degree of impact on irreplaceable resources:		N/A									
	Nature of impact:	The anticipated	l visual impact c	of construction c	of the mine on vi	isual receptors i	n close proximity to the	proposed mine	(i.e. within 5km)			
	without	4	1	6	3	33	Medium	-				
Visual impacts of	with	4	1	6	2	22	Low	-				
construction on	degree to which	Mitigation mea	isures can be im	plemented to re	educe the signifi	cance of the im	pact. These include redu	icing the				
visual receptors in close	impact can be	construction pe	eriod through ca	reful planning a	nd productive in	mplementation						
proximity to the proposed	reversed:	of resources, pl	esources, plan the placement of lay-down areas and temporary construction equipment camps in									
	degree of impact on irreplaceable		N/A									
	resources:											

Visual

				Operation	al Phase							
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)		gnificance (E+D+M)*P)	Status (+ve or -ve)	Confidence			
	Nature of impact:		The anticipated visual impact of the proposed mine on the landscape character of the area in									
	without	4	2	6	4	48	Medium	-				
	with	4	2	6	4	48	Medium	-				
Effect of the areas in close proximity to the Operating Mine degree to which impact can be reversed: degree of impact irreplaceable resources:	impact can be	can include ma designed correc and infrastructi Maintain the ge Refrain from us	The significance is expected to remain the same with and without mitigation measures. The mitigation measures can include making use of existing roads, create berms along roads to reduce visual impact, make sure all roads are designed correctly and have adequate drainage structure, Implement an environmental responsive plan to roads and infrastructure, plaint all buildings an signs with muted earth colours, no reflective surfaces, appropriate lighting, Maintain the general appearance of the facility in an aesthetically pleasing way, used dust suppression mitigation, Refrain from using the coal as infill material in road works and Monitor rehabilitated areas, and implement remedial action as and when required									
	Nature of impact:	The anticipated visual impact of the proposed mine on the landscape character of the area beyond the 5km radius										
	without	3	2	4	2	18	Low	-				
	with	3	2	4	2	18	Low	-				
Effect of the mine on	degree to which impact can be reversed:	can include ma designed correc and infrastructi	The significance is expected to remain the same with and without mitigation measures. The mitigation measures can include making use of existing roads, create berms along roads to reduce visual impact, make sure all roads are designed correctly and have adequate drainage structure, Implement an environmental responsive plan to roads and infrastructure, plaint all buildings an signs with muted earth colours, no reflective surfaces, appropriate lighting, Maintain the general appearance of the facility in an aesthetically pleasing way, used dust suppression mitigation,									
	degree of impact on irreplaceable resources:											

	Nat a6 ! a1	The anticipated	visual impact o	t the proposed i	mine on the res	idents of rural ar	nd agricultural					
	Nature of impact:	settlements and	d homesteads in	close proximity	to the propose	ed mine (i.e. with						
	without	4	2	10	3	48	Medium	-				
Impact on Settlement and	with	4	2	10	3	48	Medium	-				
homesteads in close	degree to which			•		pulated. In addit						
proximity to the proposed	impact can be	,				n would both cor						
mine	reversed:	localised absorp	otion of the visu	al impact. As su	ch, the probabi	lity of this impac	t occurring is					
	degree of impact on											
	irreplaceable				N/A							
	resources:											
	Nature of impact:	The anticipated radius	l visual impact o	f the proposed ।	mine on the res	idents of rural aı	nd agricultural settleme	nts and homest	eads beyond the 5km			
Mina's impact on the	without	3	2	8	2	26	Low	-				
Mine's impact on the residents of settlements	3	2	8	2	26	Low	-					
and homesteads within the region	degree to which impact can be reversed:	are likely to inc	t should be noted that the study area is relatively sparsely populated. In addition, homesteads are likely to include trees and domestic scale structures, which would both contribute to occurring is									
	degree of impact on	localisea absor	otion of the visu	ar impact. 713 30	err, trie probabi	iity or triis irripac	t occurring is					
	irreplaceable resources:		N/A									
	Nature of impact:	The anticipated visual impact of the proposed mine on commuters travelling on the R555 and secondary roads in close proximity to the proposed mine (i.e. within 5km)										
Visual impacts on users of	without	4	2	8	3	42	Medium	-				
major	with	4	2	8	3	42	Medium	-				
and secondary roads in close proximity to the proposed mine	degree to which impact can be reversed:	can include ma	The significance is expected to remain the same with and without mitigation measures. The mitigation measures can include making use of existing roads, create berms along roads to reduce visual impact, make sure all roads are designed correctly and have adequate drainage structure, Implement an environmental responsive plan to roads									
	degree of impact on irreplaceable resources:				N/A							
	Nature of impact:	The anticipated	l visual impact o	f the proposed r	mine on commu	uters travelling o	n the R104, the					
	without	3	2	6	2	22	Low	-				
Visual impacts on users of	with	3	2	6	2	22	Low	-				
Visual impacts on users of	degree to which	The significance	e is expected to	remain the same	e with and with	out mitigation m	neasures. The mitigation	measures				
major	impact can be	can include ma	king use of exist	ing roads, create	e berms along r	oads to reduce v	isual impact, make sure	all roads are				
and secondary roads within	reversed:	designed correc	ctly and have ad	equate drainage	e structure, Imp	lement an envir	onmental responsive pla	n to roads				

uic region.												
3	degree of impact on											
	irreplaceable				N/A							
	resources:											
	Nature of impact:	The anticipated		f the proposed			ists and sightseers in c	lose proximity to	o the proposed mine			
Visual impacts on	without	4	2	6	2	24	Low	-				
recreational	with	4	2	6	2	24	Low	-				
users, tourists and	degree to which	•	•			•	easures. The mitigatio					
sightseers in close	impact can be						isual impact, make sur					
proximity to the proposed	reversed:	designed correct	ctly and have ad	lequate drainage	e structure, Imp	lement an enviro	nmental responsive p	lan to roads				
mine	degree of impact on											
mine	irreplaceable				N/A							
	resources:											
	Nature of impact:	The anticipated	anticipated visual impact of the proposed mine on recreational users, tourists and sightseers beyond the 5km rac									
	without	3	2	4	2	18	Low	-				
Visual impacts on	with	3	2	4	2	18	Low	-				
	degree to which	The significance	e is expected to	remain the sam	e with and with	out mitigation m	easures. The mitigatio	n measures				
users, tourists and	impact can be	can include mal	king use of exist	ing roads, creat	e berms along r	oads to reduce v	isual impact, make sur	e all roads are				
sightseers within the region	reversed:	designed correc	ctly and have ad	lequate drainage	e structure, Imp	lement an enviro	nmental responsive p	lan to roads				
signiseers within the region	degree of impact on											
	irreplaceable											
	resources:											
	Nature of impact:	Visual impact o	f security and o	perational lighti	ng of the mine o	on visual recepto	rs in close proximity to	the proposed r	mine (i.e. within 5km)			
Visual impact of lighting at	without	4	2	8	3	42	Medium	-				
night on	with	4	2	8	3	42	Medium	-				
visual receptors in close	degree to which	The significant I	evel is expected	to remain the	same before and	d after mitigatior	n. Some mitigation me	asures include:				
•	impact can be	Shielding the	sources of light	by physical bar	riers (walls, veg	etation, or the st	ructure					
roxillity to the proposed	reversed:	itself);	ŭ	3. 3								
mine.	degree of impact on											
	irreplaceable				N/A							
	resources:											
	i cadal cea.											

Wetland

	Construction Phase										
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance Status (S=(E+D+M)*P) (+ve or -ve)			Confidence		
	Nature of impact:	The Impacts on	wetland habita	t as a result of:							
	without	3	5	8	4	64	High	-			
	with	2	4	6	4	48	Medium	-			
ecological structure	degree to which impact can be reversed: degree of impact on irreplaceable resources:	pan areas to en Development	sure that these / mining impac	areas are avoide ts on the affecte	ed as far as poss ed wetland featu	sible. ures should be n	tion of adjacent wetland nanaged to minimise e beings the construction				
	Nature of impact:	The Impacts on	wetland ecolog	y and sociocultu	ıral service is as	a result of:		_			
	without	3	5	8	4	64	High	-			
I handes to Wetland	with	3	3	6	3	36	Medium	-			
ecological and sociocultural service	degree to which impact can be reversed:	areas to ensure	that these area	s are avoided as	s far as possible.		tion of adjacent wetland t off limits during any	d			
·	degree of impact on irreplaceable resources:	Changes to we	nanges to wetland ecological and sociocultural service will be experienced when the mine beings the construction activity.								
	Nature of impact:	The Impacts on the disruption of the hydrological functioning of the wetland habitats is as a result of:									
	without	3	5	6	3	42	Medium	-			
	with	2	4	4	2	20	Low	-			

irreplaceable Irreplaceable loss of wetland habitat will be experienced when the mine beings the construction activity.	hydrological function	degree to which impact can be reversed:	areas to ensure that these areas are avoided as far as possible. Keep all demarcated sensitive zones outside of the construction area off limits during development phases. Prevent run-off from dirty water areas entering wetland habitats. Ensure that seepage from dirty water systems is prevented as far as possible. Ensure that the mine process water system is managed in such a way as to prevent discharge to the receiving environment. Implement effective waste management in order to prevent construction related waste from entering the wetland environment.		
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Floral

Wetland

				Operationa	al Phase							
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)		ignificance (E+D+M)*P)	Status (+ve or -ve)	Confidence			
	Nature of impact:	The Impacts on	wetland habitat	as a result of:								
	without	3	5	8	4	64	High					
	with	2	4	6	4	48	Medium					
ecological structure	degree to which impact can be reversed:	pan areas to en	sure that these	areas are avoide	d as far as possi	ble.	ion of adjacent wetland nanaged to minimise	/				
irre	degree of impact on irreplaceable resources:	Irrepla	Irreplaceable loss of wetland habitats will be experienced during the operational phase of the mine.									
	Nature of impact:	The Impacts on	wetland ecolog	y and sociocultu	ral service is as a	a result of:						
	without	3	5	8	4	64	High					
Changes to wetland with		3	3	6	3	36	Medium					
ecological and sociocultural service provision degree to wimpact can reversed: degree of ir	degree to which impact can be reversed:	It must be ensareas to ensureAll demarcate										
	degree of impact on irreplaceable resources:	Changes to wet										
	Nature of impact:	The Impacts as	a result of a cha	nge in hydrologi	cal functioning of	of the wetland h	nabitats is as a result of :					
	without	3	5	6	3	42	Medium					
	with	2	4	4	2	20	Low					
I Impact on Wetland	degree to which					udes considerat	ion of adjacent wetland					
hydrological function	impact can be			s are avoided as	•							
, ,	reversed:	 Keep all dema 	rcated sensitive	zones outside c	of the constructi	on area off limit	ts during development					
	degree of impact on irreplaceable resources:	Irrepla	aceable loss of v	vetland habitat v	vill be experienc	ced during the o	perational phase of the	mine.				

Wetland

			De	commissio	ning Phase	,			
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)		significance =(E+D+M)*P)	Status (+ve or -ve)	Confidence
	Nature of impact:	The Impacts on	wetland habitat	as a result of:	ı				
	without	3	5	8	4	64	High		
	with	2	4	6	4	48	Medium		
ecological structure	degree to which impact can be reversed: degree of impact on	pan areas to en	sure that these	areas are avoide	ed as far as possi ed wetland featu	ible.	nanaged to minimise	/	
	irreplaceable resources:				N/A				
	Nature of impact:	The Impacts on	wetland ecolog	y and sociocultu	ral service is as	a result of:			
	without	3	5	8	4	64	High		
Changes to wetland	with	3	3	6	3	36	Medium		
ecological and sociocultural									
	irreplaceable resources:								
	Nature of impact:	The Impacts on	the disruption of	of the hydrologic	al functioning o	f the wetland h	abitats is as a result of:		
	without	3	5	6	3	42	Medium		
	with	2	4	4	2	20	Low		
Impact on wetland i hydrological function	degree to which impact can be reversed:	areas to ensure	that these area	s are avoided as	far as possible.		tion of adjacent wetland		
	degree of impact on irreplaceable resources:				N/A				

Blasting

				Operation	al Phase						
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)		gnificance (E+D+M)*P)	Status (+ve or -ve)	Confidence		
	Nature of impact:	The impact	that blasting fro	om the mining o	peration can ha	ve on the housi	ng structures located in	close proximity	to the mining area.		
	without	2	3	4	4	36	Medium	-			
	with	2	3	4	2	18	Low	-			
Cround vibration impact on	degree to which impact can be reversed:	different initiat	o reduce the effects of ground vibration the planning of blast operations must occur to take cognisance of lifferent initiations and charging options. Attempt to increase the distance between the blast and the structure oncerned to reduce the effects of the vibrations.								
	degree of impact on irreplaceable resources:				N/A						
	Nature of impact:	The i	mpact that blast	ting from the mi	ning operation	can have on bor	eholes located in close	proximity to the	e mining area.		
	without	2	3	6	4	44	Medium	-			
	with	2	3	6	2	22	Low	-			
IGTOURG VIDIATION IMPACT ON	degree to which impact can be reversed:	To reduce the edifferent initiat concerned to re									
	degree of impact on irreplaceable resources:	N/A									
	Nature of impact:	The imp	The impact that blasting from the mining operation can have on roads being used by both the mine and residents in the area.								
	without	2	3	6	2	22	Low	-			
	with	2	3	6	2	22	Low	-			
TGCOUNG VIDEATION IMPACT ON	degree to which impact can be reversed:	No mitigation s repair can help				nificance howeve	er constant road mainte	enance and			

	degree of impact on irreplaceable resources:		N/A									
	Nature of impact:	The impa	act that blasting	from the mining	g operation can	have on railways	s being used by both th	e mine and resid	ents in the area.			
	without	2	3	6	4	44	Medium	-				
	with	2	3	6	2	22	Low	-				
Ground vibration impact on	degree to which	To reduce the	effects of ground	d vibration the p	lanning of blast	operations mus	t occur to take cognisar	nce of				
•	impact can be	different initiat	ions and chargir	ng options. Atte	mpt to increase	the distance bet	ween the blast and the	structure				
railways	reversed:	concerned to re	educe the effect	s of the vibration	ns.							
	degree of impact on											
	irreplaceable		N/A									
	resources:											
	Nature of impact:	The impact tha	impact that air blasting can have on houses located in close proximity to the mine.									
	without	2	2	6	4	40	Medium	-				
	with	2	3	6	2	22	Low	-				
Air Blast impact on houses i	degree to which impact can be reversed:		Mitigation measures can be used to reduce the effect of air blasting through the control of the length and type of naterial used in stremming.									
	degree of impact on											
	irreplaceable				N/A							
	resources:											
	Nature of impact:	The impact tha										
	without	2	3	2	1	7	Low	-				
	with	2	3	2	1	7	Low	-				
boreholes	degree to which impact can be reversed:	•	trategy can be i	•	reduce this sigr	nificance. The pro	Low -					
	degree of impact on											
	irreplaceable				N/A							
	resources:											
	Nature of impact:	The impact tha	t air blasting car	n have on roads	located in close	proximity to the	e mine.					
	without	2	3	2	1	7	Low	-				
	with	2	3	2	1	7	Low	-				
Air Blast impact on roads	degree to which impact can be reversed:		trategy can be i			nificance. The pro	obability of this impact	having any				
	degree of impact on irreplaceable resources:		N/A									

	Nature of impact:	The impact tha	t fly rock can ha	ve on houses lo	cated in close pr	roximity to the	mine.					
	without	2	3	4	3	27	Low	-				
	with	2	3	4	3	27	Low	-				
Fly Rock impact on houses	degree to which impact can be reversed:	•	strategy can be i ouses surroundi	•	•	nificance. The pr	obability of this impact l	having any				
	degree of impact on irreplaceable resources:				N/A							
	Nature of impact:	The impact that	mpact that fly rock can have on boreholes located in close proximity to the mine.									
	without	2										
	with	2	3	2	1	7	Low	-				
Fly Rock impact on boreholes	degree to which impact can be reversed:		o mitigation strategy can be implemented to reduce this significance. The probability of this impact having any fect on the boreholes surrounding the area is minimal.									
	degree of impact on irreplaceable resources:				N/A							
	Nature of impact:	The impact tha	t fly rock can ha	ve on roads loca	ated in close pro	ximity to the m						
	without	2	3	6	4	44	Medium	-				
	with	2	3	4	3	27	Low	-				
Fly Rock impact on roads	degree to which impact can be reversed:	Mitigation mea material used in		ed to reduce the	e effect of air bla	asting through t	he control of the length	and type of				
	degree of impact on irreplaceable resources:				N/A							
	Nature of impact:	The impact tha	t fly rock can ha	ve on railways l	ocated in close p	proximity to the	e mine.					
	without	2	3	6	4	44	Medium	-				
	with	2	3	4	3	27	Low	-				
Fly Rock impact on railways	degree to which impact can be reversed:	Mitigation mea material used in		ed to reduce the	e effect of air bla	asting through t	the control of the length	and type of				
	degree of impact on irreplaceable resources:				N/A							
	Nature of impact:	The impact tha	t fumes can hav	e on houses loc	ated in close pro	oximity to the m	nine.					
	without	2 3 4 1 9 Low -										
	with	2	3	4	1	9	Low	-				

Impact of Fumes Houses	degree to which impact can be reversed:			mplemented to ig the area is mil		ificance. The pi	robability of this impact	having any			
	degree of impact on irreplaceable resources:				N/A						
	Nature of impact:	The impact tha									
	without	2	3	2	1	7	Low	-			
	with	2	3	2	1	7	Low	-			
Impact of Fumes - Boreholes	degree to which impact can be reversed:			mplemented to nding the area is		ificance. The p	robability of this impact	having any			
	degree of impact on irreplaceable resources:		N/A he impact that fumes can have on roads located in close proximity to the mine.								
	Nature of impact:	The impact tha	t fumes can hav	e on roads locat	ed in close prox	imity to the mi	ne.				
	without	2	3	2	1	7	Low	-			
	with	2	3	2	1	7	Low	-			
Impact of Fumes - Roads	degree to which impact can be reversed:	•	0,5	mplemented to g the area is mir	•	ificance. The pi	Low -				
	degree of impact on irreplaceable resources:				N/A						
	Nature of impact:	The impact tha	t fumes can hav	e on railways lo	cated in close pr	oximity to the	mine.				
	without	2	3	2	1	7	Low	-			
	with										
Impact of Fumes - Railways	degree to which impact can be reversed:	•		mplemented to ding the area is r	_	ificance. The pi	robability of this impact	having any			
	degree of impact on irreplaceable resources:				N/A						