

23 APPENDIX E: IMPACT TABLES

Table 20: Impact Assessment during Construction Phase

CONSTRUCTION PHASE: SITE ACCESS AND SITE ESTABLISHMENT		
Potential impact and risk: Loss of topsoil, increased dust levels, and soil compaction	IMPACT 1: SOIL EROSION & SOIL COMPACTION: The clearing of areas for new waste dumps, tailings and extensions, including for logistics will result in the removal of existing vegetation and topsoil, which will disturb the soil increasing the potential for soil erosion by wind and loss of soil in the event of rainfall. Soil compaction will result from ongoing repeated use of access tracks.	
ALTERNATIVE	PREFERRED AND ONLY ALTERNATIVE	NO-GO ALTERNATIVE
Nature of impact:	Negative	NO IMPACT
Extent and duration of impact:	Site and Short term	NO IMPACT
Consequence of impact or risk:	Loss	NO IMPACT
Probability of occurrence:	Probable	NO IMPACT
Degree to which the impact may cause irreplaceable loss of resources:	Low	NO IMPACT
Degree to which the impact can be reversed:	Reversible	NO IMPACT
Indirect impacts:	Dust impacting on adjacent vegetation and causing a nuisance to workers or residents. Compaction of topsoil where vehicles drive outside demarcated areas damages seed bank and habitat for invertebrates.	NO IMPACT
Cumulative impact prior to mitigation:	Medium	NO IMPACT
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium	NO IMPACT
Degree to which the impact can be avoided :	High	NO IMPACT
Degree to which the impact can be managed :	High	NO IMPACT
Degree to which the impact can be mitigated :	High	NO IMPACT
Proposed mitigation:	<ul style="list-style-type: none"> • After clearing, the affected area shall be stabilised to prevent any erosion or sediment runoff. Stabilized areas shall be demarcated accordingly. • Incremental clearing of ground cover should take place to avoid unnecessary exposed surfaces. • Reasonable measures must be undertaken to ensure that any exposed areas are adequately protected against the wind and potential storm water run-off. • Top soil shall be removed separately and stockpiled separately from other soil base layers. • The stockpile areas for topsoil are temporary as they will be re-used on a cut and fill basis. • Stockpiles should ideally be located to create the least visual impact and must be maintained to avoid erosion of the material. • Topsoil storage areas must be convex and should not exceed 2m in height. 	NO IMPACT

	<ul style="list-style-type: none"> • Topsoil must be treated with care, must not be buried or in any other way be rendered unsuitable for further use (e.g. by mixing with spoil) and precautions must be taken to prevent unnecessary handling and compaction. • In particular, topsoil must not be subject to compaction greater than 1 500 kg/m² and must not be pushed by a bulldozer for more than 50 metres. Trucks may not be driven over the stockpiles. • Reduce drop height of material to a minimum. • Temporarily halt material handling in windy conditions. • A speed limit of 30km/hour will be displayed and enforced through a fining system. All vehicle drivers using the access road and entering the site will be informed of the speed limit. • Soil erosion on haul roads is to be regularly monitored and repaired. • Compacted areas that are not required for access shall be scarified after use during decommissioning and rehabilitation. • Tailings may only be located on the old excavated pit to reduce impacts on undisturbed areas. 	
Residual impacts:	Potential loss of invertebrates that live in the top layers of the soil.	NO IMPACT
Cumulative impact post mitigation:	Low	NO IMPACT
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low	NO IMPACT
Potential impact and risk: Potential Impacts on Water Resources	IMPACT 2: WATER RESOURCES (QUALITY & QUANTITY): Potable water from the Municipality will be trucked in and stored in water tanks. Sea water will be pumped from the inter-tidal zone and used (with recycling) for processing of materials. There are no permanent surface water features on site that could be impacted on.	
ALTERNATIVE	PREFERRED AND ONLY ALTERNATIVE	NO-GO ALTERNATIVE
Nature of impact:	Negative	NO IMPACT
Extent and duration of impact:	Local & Medium term	NO IMPACT
Consequence of impact or risk:	Loss	NO IMPACT
Probability of occurrence:	Unlikely for water quality Definite for quantity (Municipal supply)	NO IMPACT
Degree to which the impact may cause irreplaceable loss of resources:	Low	NO IMPACT
Degree to which the impact can be reversed:	Reversible	NO IMPACT
Indirect impacts:	Rainfall is very seldom and evaporation rate is very high. Indirect impacts on surface water are unlikely.	NO IMPACT
Cumulative impact prior to mitigation:	Low	NO IMPACT
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low	

Degree to which the impact can be avoided :	Low	NO IMPACT
Degree to which the impact can be managed :	High	NO IMPACT
Degree to which the impact can be mitigated :	High	NO IMPACT
Proposed mitigation:	<p><u>Implement and follow water saving procedures and methodologies.</u></p> <ul style="list-style-type: none"> • Only the allowed amount may be used from the municipal supply. • Place oil traps under stationary machinery, only re-fuel machines at fuelling station, construct structures to trap fuel spills at fuelling station, immediately clean oil and fuel spills and dispose contaminated material (soil, etc.) at licensed sites only. • Take care that temporary onsite sanitation facilities are well maintained and serviced regularly. • Draw-up and strictly enforce procedures for the storage, handling and transport of different hazardous materials. • Ensure vehicles and equipment are in good working order and drivers and operators are properly trained. • Ensure that good housekeeping rules are applied. • Minimise storage of hazardous substances onsite during construction. • Service and refuel construction vehicles at a fit-for-purpose facility to minimise pollution risks. • Waste materials generated on site must be stored in suitable lidded containers and removed off site to a suitable disposal facility. • Waste separation must be undertaken if practical for recycling. • Provide all workers with environmental awareness training and comply with the requirements of the EMPr. • Provide mobile ablution facilities • Drinking water to be brought on site as per existing practices. • Clear demarcation of access areas, close to salt pan. <p><u>Waste water (i.e., including process water and grey water)</u></p> <ul style="list-style-type: none"> • A biozone system will be used to treat effluent (containerised). • By keeping contaminated and clean water separate and establishing controlled runoff washing bays, the flow and end destination of decontamination washing water will be controlled. • Although erosion and runoff are natural processes it should be managed by maintaining topsoil in any areas not in use and maintaining maximum existing vegetation coverage. • Slow storm water runoff with contoured, low-gradient drains and channels. • Storm water diversion and erosion control contour berms separate clean and contaminated water systems around the pit and infrastructure areas. 	NO IMPACT
Residual impacts:	None	NO IMPACT
Cumulative impact post mitigation:	Very Low	NO IMPACT

Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Very Low	NO IMPACT
Potential impact and risk: Potential Impacts on Biodiversity	IMPACT 3: LIMITED LOSS OF NATURAL VEGETATION AND ECOLOGICAL FUNCTIONING IN AREA No section of the site is classified as a Critical Biodiversity Area or Ecological Support Area. The salt pan is classified as a NFEPA Wetland.	
ALTERNATIVE	PREFERRED AND ONLY ALTERNATIVE	NO-GO ALTERNATIVE
Nature of impact:	Negative	NO IMPACT
Extent and duration of impact:	Site & Short term	NO IMPACT
Consequence of impact or risk:	Loss	NO IMPACT
Probability of occurrence:	Definite	NO IMPACT
Degree to which the impact may cause irreplaceable loss of resources:	Low	NO IMPACT
Degree to which the impact can be reversed:	Reversible	NO IMPACT
Indirect impacts:	<ul style="list-style-type: none"> • Soil disturbance caused by vegetation clearing will provide suitable conditions for the establishment and spreading of alien invasive vegetation. • Disturbance of salt pan connectivity to underground water resources or other natural areas. • Removal of alien invasive vegetation if required, is a positive impact, and will benefit the ecological functioning. 	NO IMPACT
Cumulative impact prior to mitigation:	Low	NO IMPACT
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low	NO IMPACT
Degree to which the impact can be avoided :	Medium	NO IMPACT
Degree to which the impact can be managed :	Medium	NO IMPACT
Degree to which the impact can be mitigated :	Medium	NO IMPACT
Proposed mitigation:	<ul style="list-style-type: none"> • Demarcate the sample pit, sample trench, and topsoil stockpiles using green shade cloth to contain the area of disturbance. • Leave a 50cm gap between the bottom of the shade cloth and the ground to allow for the movement of small fauna. • Demarcate the sections of existing tracks that may be used to access each sample pit or trench, including the area for turning circles of vehicles. • Conduct a “search and rescue” operation to identify any plants of conservation concern prior to clearing each prospecting pit (footprint of each sample pit is 88m²); and for the increased area required for a prospecting trench, should the sample pit provide an indication of a viable mineral resource for further bulk sampling (0.5Ha), • No indigenous plants outside of the demarcated work areas may be damaged or removed. 	NO IMPACT

	<ul style="list-style-type: none"> Remove alien invasive vegetation if required and ensure ongoing alien vegetation clearing in the sampling pit or trench . The noise and vibration caused by the earthmoving equipment will disturb mobile fauna that should move away when activities commence. Should any animals be encountered these should be relocated by a suitably trained nature conservation officer. Demarcate areas for the sample pits and trenches and ensure that all other adjacent areas are regarded as no-go areas. A 10m buffer must be left between the salt pan and any pits and trenches where no excavation may take place. The Closure plan must be implemented. 	
Residual impacts:	The local fauna is familiar with the existing prospecting and mining activities on site.	NO IMPACT
Cumulative impact post mitigation:	Very Low	NO IMPACT
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Very Low	NO IMPACT
Potential impact and risk: Contamination & Pollution	IMPACT 4: POTENTIAL FOR SOIL CONTAMINATION, AND WASTE MANAGEMENT DURING CONSTRUCTION PHASE Spillage of oils, waste water, refuge and other waste generated by construction activities	
ALTERNATIVE	PREFERRED AND ONLY ALTERNATIVE	NO-GO ALTERNATIVE
Nature of impact:	Negative	NO IMPACT
Extent and duration of impact:	Site & Short term	NO IMPACT
Consequence of impact or risk:	Loss	NO IMPACT
Probability of occurrence:	Possible	NO IMPACT
Degree to which the impact may cause irreplaceable loss of resources:	Low	NO IMPACT
Degree to which the impact can be reversed:	Reversible	NO IMPACT
Indirect impacts:	Windblown litter will cause visual blight. Hydrocarbons are toxic and will cause vegetation die-back and soil poisoning.	NO IMPACT
Cumulative impact prior to mitigation:	Medium	NO IMPACT
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium	NO IMPACT
Degree to which the impact can be avoided :	High	NO IMPACT
Degree to which the impact can be managed :	High	NO IMPACT
Degree to which the impact can be mitigated :	High	NO IMPACT
Proposed mitigation:	<ul style="list-style-type: none"> Oils and lubricants must be stored within sealed containment structures. Any mechanical equipment maintenance must be undertaken on drip trays or UPVC sheets to prevent spills/ leaks onto the soil. 	NO IMPACT

	<ul style="list-style-type: none"> • When not in use, a drip tray must be placed beneath mechanical equipment and vehicles. • Machinery must be kept in good working order and regularly inspected for leaks. • A spill kit will be available on each site where mining activities are in progress. • Any spillages will be cleaned up immediately. • Waste materials generated on site must be stored in suitable lidded containers and removed off site to a suitable disposal facility. • Waste separation must be undertaken. • Provide all workers with environmental awareness training. • Provide a bin at the site. • Regularly dispose of any solid waste at a municipal waste disposal site. • Ensure all workers comply with the requirements of the EMPr. • Provide mobile ablution facilities. 	
Residual impacts:	A lack of waste food management encourages vermin.	NO IMPACT
Cumulative impact post mitigation:	Low	NO IMPACT
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low	NO IMPACT
Potential impact and risk: Potential Impacts on Visual Landscape	IMPACT 5: VISUAL INTRUSION: Caused by machinery, topsoil stockpiles, cleared areas, and movement of trucks on site during preparation of site establishment.	
ALTERNATIVE	PREFERRED AND ONLY ALTERNATIVE	NO-GO ALTERNATIVE
Nature of impact:	Negative	NO IMPACT
Extent and duration of impact:	Site & Short term	NO IMPACT
Consequence of impact or risk:	Loss	NO IMPACT
Probability of occurrence:	Definite	NO IMPACT
Degree to which the impact may cause irreplaceable loss of resources:	Low	NO IMPACT
Degree to which the impact can be reversed:	Reversible	NO IMPACT
Indirect impacts:	The site is flat, with views obstructed by low level vegetation in most places, effectively screening the interspersed sampling pits or trenches.	NO IMPACT
Cumulative impact prior to mitigation:	Low	NO IMPACT
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low	NO IMPACT
Degree to which the impact can be avoided :	Medium	NO IMPACT
Degree to which the impact can be managed :	Medium	NO IMPACT
Degree to which the impact can be mitigated :	High	NO IMPACT

Proposed mitigation:	<ul style="list-style-type: none"> The site shall be kept neat and tidy at all times. Equipment must be kept in designated areas and storing/stockpiling shall be kept orderly. Mitigation of the visual impact by screening of prospecting pits or trenches with green shade cloth. 	NO IMPACT
Residual impacts:	Good housekeeping will ensure a neat and well-maintained construction area reducing visual impact.	NO IMPACT
Cumulative impact post mitigation:	Low	NO IMPACT
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low	NO IMPACT
Potential impact and risk: Potential Impacts on Social, and Biophysical Environments	IMPACT 6: EMISSIONS (DUST, VEHICLES & NOISE): Noise and dust will be created by mining equipment (e.g. front-end loaders) and vehicles, which will emit Greenhouse Gases.	
	PREFERRED AND ONLY ALTERNATIVE	NO-GO ALTERNATIVE
Nature of impact:	Negative	NO IMPACT
Extent and duration of impact:	Local & Short Term	NO IMPACT
Consequence of impact or risk:	Loss	NO IMPACT
Probability of occurrence:	Definite	NO IMPACT
Degree to which the impact may cause irreplaceable loss of resources:	Low	NO IMPACT
Degree to which the impact can be reversed:	Reversible	NO IMPACT
Indirect impacts:	<ul style="list-style-type: none"> Carbon emissions from vehicle exhausts have a negative impact on the ozone layer. Local residents along the access tracks and roads would be impacted on by noise, dust and vehicle emissions during the construction activities. Increase in Greenhouse Gas Emissions from vehicles. 	NO IMPACT
Cumulative impact prior to mitigation:	Low	NO IMPACT
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low	NO IMPACT
Degree to which the impact can be avoided :	Medium	NO IMPACT
Degree to which the impact can be managed :	Medium	NO IMPACT
Degree to which the impact can be mitigated :	Medium	NO IMPACT
Proposed mitigation:	<ul style="list-style-type: none"> The Applicant shall adhere to the local by-laws and regulations regarding the noise and associated hours of operations. The Applicant shall limit noise levels (e.g. install and maintain silencers on machinery). The provisions of SANS 1200A Sub clause 4.1 regarding “built-up” area shall apply to all areas within audible distance of residents whether in urban, peri-urban or rural areas. 	NO IMPACT

	<ul style="list-style-type: none"> • Construction and demolition activities generating output of 85dB or more, shall be limited to normal working hours and not allowed during weekends to limit the impact of noise of neighbours. No amplified music shall be allowed on site. • Hauling vehicles shall adhere to municipal and provincial traffic regulations including speed limits. • Vehicles used on site for the construction related activities shall be maintained and in a good working condition so as to reduce emissions. • Engines shall be turned off when the vehicle is temporarily parked or stationery for long periods. • Stockpiles must be maintained (covered where necessary) to avoid wind erosion of the material. • Incremental clearing of ground cover should take place to avoid unnecessary exposed surfaces. • Health and safety equipment is required for workers. • The wetting of the roads helps reduce dust generation during transporting of processing materials. • No amplified music should be allowed on site. • Existing tracks will be used as haul roads and will only be upgraded to facilitate haul trucks by applying dust suppression and/or hardening compound such as Macadamite. • On public roads the vehicles shall adhere to municipal and provincial traffic regulations including speed limits. • Vehicles used on site for the construction related activities shall be maintained and in a good working condition so as to reduce emissions. • Engines shall be turned off when the vehicle is temporarily parked or stationery for long periods 	
Residual impacts:	Carbon emissions have impact on climate change.	NO IMPACT
Cumulative impact post mitigation:	Very Low	NO IMPACT
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Very Low	NO IMPACT
Potential impact and risk: Potential Impacts on archaeological resources	IMPACT 7: POTENTIAL FOR ARCHAEOLOGICAL RESOURCES IMPACTS Refer to Appendix D, page 199. Direct impacts to archaeological resources would occur primarily during the construction phase in terms of stone age sites and the copper railway (e.g. if an excavator drives beyond the demarcated area during construction).	
ALTERNATIVE	PREFERRED AND ONLY ALTERNATIVE	NO-GO ALTERNATIVE
Nature of impact:	Negative	NO IMPACT
Extent and duration of impact:	Regional, permanent	NO IMPACT
Consequence of impact or risk:	Loss of stone age sites and historical copper railway	NO IMPACT

Probability of occurrence:	Highly probable	NO IMPACT												
Degree to which the impact may cause irreplaceable loss of resources:	High	NO IMPACT												
Degree to which the impact can be reversed:	Low	NO IMPACT												
Indirect impacts:	Loss of archaeological resources	NO IMPACT												
Cumulative impact prior to mitigation:	High	NO IMPACT												
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High	NO IMPACT												
Degree to which the impact can be avoided :	High	NO IMPACT												
Degree to which the impact can be managed :	High	NO IMPACT												
Degree to which the impact can be mitigated :	High	NO IMPACT												
Proposed mitigation:	<p>The following recommendations are made: Mandatory avoidance of some areas with 50m buffer, avoidance (with 50m buffer) or archaeological excavation of others The assigned heritage grade and the nature of mitigation go hand in hand as shown in table below (taken from HIA). Many sites are very ephemeral and/or obviously lack cultural materials. These sites are graded GPC and require no further work.</p> <table border="1"> <thead> <tr> <th>Grade</th> <th>Mitigation</th> <th>Purpose of mitigation</th> </tr> </thead> <tbody> <tr> <td>GPC</td> <td>One</td> <td>No apparent cultural significance, no mitigation required.</td> </tr> <tr> <td>GPB</td> <td>Small sample</td> <td>The small sample provides a record of the site and its contents with the main record anticipated to be of the shellfish. This sampling also serves as a test excavation to determine whether further excavations might be required. This would be in the event that the initial sample produces an elevated density of cultural materials. Some sites were allocated slightly more time because the chances of encountering cultural materials seemed higher from the initial surface examination. Note that as a precautionary measure in some large clusters of scatters (that might represent single site complexes) where only certain waypoints have been suggested for mitigation, all waypoints have been assigned the same grade so that if significant subsurface deposits are found the whole site will be available for potential further investigation.</td> </tr> <tr> <td>GPA</td> <td>Excavation</td> <td>Sites where many cultural materials were evident on the surface were assigned a grade of GPA. These are sites with a medium-high local cultural significance because there is clearly much scientific data to be gained through their excavation. At these sites a fairly large area should be sampled.</td> </tr> </tbody> </table>	Grade	Mitigation	Purpose of mitigation	GPC	One	No apparent cultural significance, no mitigation required.	GPB	Small sample	The small sample provides a record of the site and its contents with the main record anticipated to be of the shellfish. This sampling also serves as a test excavation to determine whether further excavations might be required. This would be in the event that the initial sample produces an elevated density of cultural materials. Some sites were allocated slightly more time because the chances of encountering cultural materials seemed higher from the initial surface examination. Note that as a precautionary measure in some large clusters of scatters (that might represent single site complexes) where only certain waypoints have been suggested for mitigation, all waypoints have been assigned the same grade so that if significant subsurface deposits are found the whole site will be available for potential further investigation.	GPA	Excavation	Sites where many cultural materials were evident on the surface were assigned a grade of GPA. These are sites with a medium-high local cultural significance because there is clearly much scientific data to be gained through their excavation. At these sites a fairly large area should be sampled.	NO IMPACT
Grade	Mitigation	Purpose of mitigation												
GPC	One	No apparent cultural significance, no mitigation required.												
GPB	Small sample	The small sample provides a record of the site and its contents with the main record anticipated to be of the shellfish. This sampling also serves as a test excavation to determine whether further excavations might be required. This would be in the event that the initial sample produces an elevated density of cultural materials. Some sites were allocated slightly more time because the chances of encountering cultural materials seemed higher from the initial surface examination. Note that as a precautionary measure in some large clusters of scatters (that might represent single site complexes) where only certain waypoints have been suggested for mitigation, all waypoints have been assigned the same grade so that if significant subsurface deposits are found the whole site will be available for potential further investigation.												
GPA	Excavation	Sites where many cultural materials were evident on the surface were assigned a grade of GPA. These are sites with a medium-high local cultural significance because there is clearly much scientific data to be gained through their excavation. At these sites a fairly large area should be sampled.												

	<table border="1"> <tr> <td>IIIA</td> <td>Avoidance and <i>in situ</i> protection</td> <td>This grade was allocated to all finds related to the historic copper railway. The copper mining landscape is of very high local cultural significance and must not be disturbed by prospecting.</td> </tr> </table> <p>Sampling of sites graded GPB will entail excavation of at least one square meter, and more where this becomes warranted (i.e. if many cultural materials are found). More significant sites were graded GPA and will need a larger scale excavation that samples a wider area and gathers valuable scientific data. This work would have to be done under a permit issued to the consulting archaeologist by SAHRA. It is noted, however, that the intention is to try and avoid as many archaeological sites as possible, so mitigation as described here will only be required for those sites that cannot be avoided. For avoidance, buffers of 30 m around sites are required by SAHRA. To effect this, buffers of 50 m around the waypoints have been provided to account for the area of the site plus a buffer of at least 30 m for all waypoints of GPB or higher grading. Management measures are also required. This will entail the careful planning by the developer of the project layout, both the test pitting phase and the bulk sampling phase. Maps should be prepared showing all areas that will require disturbance. These should be examined by an archaeologist and submitted to SAHRA for the record. Any mitigation required will need to be decided upon and commissioned. Prospecting work may not commence in the relevant areas until SAHRA has approved of the disturbance plan (if no impacts are expected) or the mitigation report.</p>	IIIA	Avoidance and <i>in situ</i> protection	This grade was allocated to all finds related to the historic copper railway. The copper mining landscape is of very high local cultural significance and must not be disturbed by prospecting.	
IIIA	Avoidance and <i>in situ</i> protection	This grade was allocated to all finds related to the historic copper railway. The copper mining landscape is of very high local cultural significance and must not be disturbed by prospecting.			
Residual impacts:	None identified for insignificant findings	NO IMPACT			
Cumulative impact post mitigation:	Low	NO IMPACT			
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low	NO IMPACT			
Potential impact and risk: Potential Impacts on graves	IMPACT 8: POTENTIAL FOR IMPACTS ON GRAVES : Refer to Appendix D, page 199. Impacts to graves could occur during the construction phase.				
ALTERNATIVE	PREFERRED AND ONLY ALTERNATIVE	NO-GO ALTERNATIVE			
Nature of impact:	Direct, Negative	NO IMPACT			
Extent and duration of impact:	Local & Permanent	NO IMPACT			
Consequence of impact or risk:	Loss	NO IMPACT			
Probability of occurrence:	Low	NO IMPACT			
Degree to which the impact may cause irreplaceable loss of resources:	High	NO IMPACT			
Degree to which the impact can be reversed:	Low	NO IMPACT			
Indirect impacts:	Loss of graves	NO IMPACT			
Cumulative impact prior to mitigation:	Low	NO IMPACT			

Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High	NO IMPACT
Degree to which the impact can be avoided :	High	NO IMPACT
Degree to which the impact can be managed :	Medium	NO IMPACT
Degree to which the impact can be mitigated :	High	NO IMPACT
Proposed mitigation:	The following recommendations are made: There are no pre-construction mitigation measures that can be applied. However, provision needs to be made for the immediate protection and reporting of any accidental finds of human remains to an archaeologist for evaluation and rescue as necessary. The SAHRA protocols at the time for dealing with human remains will need to be followed.	NO IMPACT
Residual impacts:	None identified for insignificant findings	NO IMPACT
Cumulative impact post mitigation:	Low	NO IMPACT
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium	NO IMPACT
Potential impact and risk: Potential Impacts on Cultural landscape	IMPACT 9: POTENTIAL FOR CULTURAL LANDSCAPE IMPACTS: Refer to Appendix D, page 199. The density of archaeological resources means that the landscape is also a precolonial cultural landscape.	
ALTERNATIVE	PREFERRED AND ONLY ALTERNATIVE	NO-GO ALTERNATIVE
Nature of impact:	Direct, Negative	NO IMPACT
Extent and duration of impact:	Local & short term	NO IMPACT
Consequence of impact or risk:	Loss	NO IMPACT
Probability of occurrence:	Definite	NO IMPACT
Degree to which the impact may cause irreplaceable loss of resources:	Low	NO IMPACT
Degree to which the impact can be reversed:	High	NO IMPACT
Indirect impacts:	Loss of precolonial cultural landscape	NO IMPACT
Cumulative impact prior to mitigation:	Low	NO IMPACT
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low	NO IMPACT
Degree to which the impact can be avoided :	Low	NO IMPACT
Degree to which the impact can be managed :	Medium	NO IMPACT
Degree to which the impact can be mitigated :	High	NO IMPACT
Proposed mitigation:	The following recommendations are made:	NO IMPACT

	The only mitigation measure suggested is to ensure that correct rehabilitation measures are applied. This measure has already been included into the project design.	
Residual impacts:	None identified	NO IMPACT
Cumulative impact post mitigation:	Low	NO IMPACT
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low	NO IMPACT
Potential impact and risk: Potential Impacts on paleontological resources	IMPACT 10 PALAEOLOGICAL IMPACTS The impact on paleontological resources takes place during all earthmoving activities. 1. Loss of fossil bones from excavations in the marine Avontuur, Hondeklipbaai and Curlew Strand formations 2. Loss of fossil bones from excavations in the aeolian formations, included pedocretes and pan deposits. 3. Loss of fossil shells from excavations in the Avontuur and Hondeklipbaai formations. 4. Loss of fossil shells from excavations in the marine Curlew Strand Formation raised beaches.	
ALTERNATIVE	PREFERRED AND ONLY ALTERNATIVE	NO-GO ALTERNATIVE
Nature of impact:	Negative	NO IMPACT
Extent and duration of impact:	1. Local & Permanent 2. Local & Permanent 3. Local & Permanent 4. Local & Permanent	NO IMPACT
Consequence of impact or risk:	Permanent loss of material palaeontological heritage (fossil specimens) and the scientific discovery and knowledge implicit in their origin and context	NO IMPACT
Probability of occurrence:	Probable	NO IMPACT
Degree to which the impact may cause irreplaceable loss of resources:	Without mitigation and rescue of unearthed fossils there will be a COMPLETE LOSS OF RESOURCES within the footprints of the development.	NO IMPACT
Degree to which the impact can be reversed:	Irreversible	NO IMPACT
Indirect impacts:	The material fossil evidence of “deep time” is embedded in the creation of the sacred landscape and contributes to the “sense of place” cultural aesthetic of the region. The loss of fossils and concomitant interpreted knowledge impoverishes the tangible testimony of the prehistoric landscape and ecological context of ancient humans.	NO IMPACT
Cumulative impact prior to mitigation:	The cumulative impact of coastal developments and coastal mining is the inevitable and permanent loss of fossils and the associated scientific implications. As mentioned, the impact of both the finding and the loss of fossils is permanent. Diligent and successful mitigation contributes to a positive cumulative impact as the rescued fossils are preserved and accumulated for scientific study. Even though just a very minor portion of the bone fossils exposed in coastal excavations has been seen and saved, the rescued fossils have proved to be of fundamental scientific value.	NO IMPACT
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	1. Medium 2. Medium 3. Medium	NO IMPACT

	4. Medium	
Degree to which the impact can be avoided :	Low	NO IMPACT
Degree to which the impact can be managed :	Low to moderate	NO IMPACT
Degree to which the impact can be mitigated :	Moderate	NO IMPACT
Proposed mitigation:	<ol style="list-style-type: none"> 1. Loss of fossil bones from excavations in the marine Avontuur, Hondeklipbaai and Curlew Strand formations. <ul style="list-style-type: none"> • Prospecting personnel to be alert for rare fossil bones and follow “Fossil Finds Procedure”. • Cease construction on discovery of fossil bones and protect fossils from further damage. • Contact appointed palaeontologist providing information and images. • Palaeontologist will assess information and establish suitable response, such as the importance of the find and recommendations for preservation, collection and record keeping. 2. Loss of fossil bones from excavations in the aeolian formations, included pedocretes and pan deposits. <ul style="list-style-type: none"> • Prospecting personnel to be alert for rare fossil bones and follow “Fossil Finds Procedure”. • Cease construction on discovery of fossil bones and protect fossils from further damage. • Contact appointed palaeontologist providing information and images. • Palaeontologist will assess information and establish suitable response, such as the importance of the find and recommendations for preservation, collection and record keeping. 3. Loss of fossil shells from excavations in the Avontuur and Hondeklipbaai formations. <ul style="list-style-type: none"> • Prospecting personnel and ECO to be aware that a substantial temporary exposure of marine shelly beds may require sampling and recording. • In the event of a large exposure of shell beds, the appointed palaeontologist must be notified and provided with information and images. Palaeontologist will assess information and establish suitable response, such as the importance of the find and recommendations for sample collection and record keeping. • Selected exposed fossiliferous sections in earthworks recorded and sampled by appointed palaeontologist. 4. Loss of fossil shells from excavations in the marine Curlew Strand Formation raised beaches. <ul style="list-style-type: none"> • Prospecting personnel and ECO to be aware that a substantial temporary exposure of marine shelly beds may require sampling and recording. • In the event of a large exposure of shell beds, the appointed palaeontologist must be notified and provided with information and images. Palaeontologist will assess information and establish suitable response, such as the importance of the find and recommendations for sample collection and record keeping. • Selected exposed fossiliferous sections in earthworks recorded and sampled by appointed palaeontologist. 	NO IMPACT

Residual impacts:	Negative residual impact arises from the unavoidable loss of fossils of unknown significance in spite of mitigation efforts. Positive residual impact arises from the successful rescue of fossil material for posterity, resulting in material for future research, employment opportunities for budding, young researchers and enhanced insights into the prehistory of the Northern Cape.	NO IMPACT
Cumulative impact post mitigation:	Medium (for LSA Rock Shelters) Medium-Low (for more recent occupation of area)	NO IMPACT
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	1. Medium 2. Medium 3. Medium 4. Medium	NO IMPACT
Potential impact and risk: Potential Impacts on Socio-Economic Environment	IMPACT 11: CREATION OF EMPLOYMENT & JOB SECURITY DURING CONSTRUCTION PHASE WITH LOCAL AND REGIONAL ECONOMIC SPIN-OFFS	
ALTERNATIVE	PREFERRED AND ONLY ALTERNATIVE	NO-GO ALTERNATIVE
Nature of impact:	Positive	Negative
Extent and duration of impact:	Local, District and Short term	Local, District & Short Term
Consequence of impact or risk:	Gain	Loss
Probability of occurrence:	Definite	Definite
Degree to which the impact may cause irreplaceable loss of resources:	No Loss	Medium
Degree to which the impact can be reversed:	Irreversible (employment can be lost by an individual due to non-performance but the job provision is irreversible)	Reversible
Indirect impacts:	<ul style="list-style-type: none"> Upskilling Local economic spin-offs through increased income earned, and through purchasing of local materials Income generation for landowners in a time of severe drought where livestock farming is not sustainable. 	<ul style="list-style-type: none"> No upskilling No local economic spin-offs due to lack of income earned, and no ongoing supply of diamonds to local and international markets. Opportunity cost for landowner and applicant.
Cumulative impact prior to mitigation:	Medium (-)	Medium (-)

Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low (-)	Medium (-)
Degree to which the impact can be avoided :	Very low	Medium
Degree to which the impact can be managed :	High	Medium
Degree to which the impact can be mitigated :	High	Medium
Proposed mitigation:	<ul style="list-style-type: none"> • Employment of local previously disadvantaged labour wherever possible, with provision of training (upskilling) 	No mitigation possible with No-Go alternative.
Residual impacts:	The upliftment of unemployed people, with positive impact on standard of living for their families. Local and regional economic spin-offs from investment through Social Labour Plan.	No job creation or potential for upskilling of previously disadvantaged labour, and no ongoing supply of diamonds.
Cumulative impact post mitigation:	Medium (+)	Medium (-)
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium (+)	Medium (-)

Table 21: Impact Assessment during Operational Phase

OPERATIONAL PHASE		
Potential impact and risk: Change in Topography	IMPACT 1: CHANGE IN TOPOGRAPHY: The change in topography from prospecting activities would be slight depressions created in the landscape. These depressions would be minimal as only 1% is taken for final recovery. The tailings are returned to the trenches for backfilling. The 1% will backfilled in the historical pit, and will fill 10% of this historical excavation, should there be 10 sample trenches.	
ALTERNATIVE	PREFERRED AND ONLY ALTERNATIVE	NO-GO ALTERNATIVE
Nature of impact:	Negative	NO IMPACT
Extent and duration of impact:	Site & Long term	NO IMPACT
Consequence of impact or risk:	Loss	NO IMPACT
Probability of occurrence:	Possible	NO IMPACT
Degree to which the impact may cause irreplaceable loss of resources:	Medium	NO IMPACT
Degree to which the impact can be reversed:	Reversible	NO IMPACT
Indirect impacts:		NO IMPACT
Cumulative impact prior to mitigation:	Medium	NO IMPACT
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium	NO IMPACT
Degree to which the impact can be avoided :	Low	NO IMPACT
Degree to which the impact can be managed :	High	NO IMPACT
Degree to which the impact can be mitigated :	High	NO IMPACT
Proposed mitigation:	<ul style="list-style-type: none"> Pit development will be the same as for trench development (Bulk Sampling), but on a much smaller scale. There will only ever be three prospecting pits open at any given time, one in the process of rehabilitation, one that is operational and one in the process of development and it is anticipated that no more than 30 such pits will be developed. After results are logged the pit will be backfilled immediately for security and safety reasons before the project is moved to the next pit position. In case of sudden closure of the project there will only be one open pit to be dealt with as part of final decommissioning and rehabilitation. The existing historical excavation is estimated at 50 000m³ at an average depth of 5 meters, which means that even if the maximum of 10 bulk samples is excavated only 10% of the 	NO IMPACT

	excavation will be filled. Therefore, at final closure the floor of the excavation needs to be levelled and the sides sloped to create an even depression, or if prospecting advances to full scale mining then the excavation will remain for processing during mining activities.	
Residual impacts:	<ul style="list-style-type: none"> Very slight visual change in landscape and topography following rehabilitation. 	NO IMPACT
Cumulative impact post mitigation:	Medium	NO IMPACT
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low	NO IMPACT
Potential impact and risk: Loss of soil, increased dust levels, and soil compaction	IMPACT 2: SOIL EROSION & SOIL COMPACTION: The potential for soil erosion by wind and storm water run-off; soil compaction from repeated use of access tracks.	
ALTERNATIVE	PREFERRED AND ONLY ALTERNATIVE	NO-GO ALTERNATIVE
Nature of impact:	Negative	NO IMPACT
Extent and duration of impact:	Site & Long term	NO IMPACT
Consequence of impact or risk:	Loss	NO IMPACT
Probability of occurrence:	Definite	NO IMPACT
Degree to which the impact may cause irreplaceable loss of resources:	Medium	NO IMPACT
Degree to which the impact can be reversed:	Reversible	NO IMPACT
Indirect impacts:	Dust impacting on adjacent vegetation and causing a nuisance to workers or residents. Compaction of topsoil where vehicles drive outside demarcated areas damages seed bank and habitat for invertebrates.	NO IMPACT
Cumulative impact prior to mitigation:	Medium	NO IMPACT
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium	NO IMPACT
Degree to which the impact can be avoided :	Medium	NO IMPACT
Degree to which the impact can be managed :	Medium	NO IMPACT
Degree to which the impact can be mitigated :	Medium	NO IMPACT
Proposed mitigation:	<ul style="list-style-type: none"> After clearing, the affected area shall be stabilised to prevent any erosion or sediment runoff. Stabilised areas shall be demarcated accordingly. 	NO IMPACT

	<ul style="list-style-type: none"> • Incremental clearing of vegetation should take place to avoid unnecessary exposed surfaces. • Reasonable measures must be undertaken to ensure that any exposed areas are adequately protected against the wind and storm water run-off. • Reduce drop height of material to a minimum. • Temporarily halt material handling in windy conditions. • A speed limit of 30km/hour will be displayed and enforced through a fining system. All vehicle drivers using the access road and entering the site will be informed of the speed limit. • Compacted areas that are not required for access shall be scarified after use during decommissioning and rehabilitation. • The basic rehabilitation methodology will therefore strive to replicate the pre-prospecting topography, wherever possible, or at least not to increase overall slope gradients without emplacement of adequately designed erosion control or runoff diversion structures. • Provision must also be made for efficient storm water control to prevent erosion of roadways. • Soil erosion on haul roads is to be regularly monitored and repaired. • Top soil shall be removed separately and stockpiled separately from other soil base layers. • The stockpile areas for topsoil are temporary as they will be re-used on a cut and fill basis. • Stockpiles should ideally be located to create the least visual impact and must be maintained to avoid erosion of the material. • Topsoil storage areas must be convex and should not exceed 2m in height. • Topsoil must be treated with care, must not be buried or in any other way be rendered unsuitable for further use (e.g. by mixing with spoil) and precautions must be taken to prevent unnecessary handling and compaction. • In particular, topsoil must not be subject to compaction greater than 1 500 kg/m² and must not be pushed by a bulldozer for more than 50 metres. Trucks may not be driven over the stockpiles. • Tailings may only be located on the old excavated pit to reduce impacts on undisturbed areas. 	
Residual impacts:	<ul style="list-style-type: none"> • Unmanaged soil erosion will result in loss of topsoil. • Unmanaged dust from unsurfaced roads will cause a nuisance and impact on the health of the workers. • Dust impacting on adjacent vegetation decreasing palatability for livestock and fauna. • Potential loss of invertebrates that live in the top layers of the soil. 	NO IMPACT
Cumulative impact post mitigation:	Low	NO IMPACT
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low	NO IMPACT
Potential impact and risk: Potential Impacts on Water Resources	IMPACT 3: WATER RESOURCES (QUALITY & QUANTITY):	

	Potable water from the Municipality will be trucked in and stored in water tanks. Sea water will be pumped from the inter-tidal zone and used (with recycled) for process materials. There are no permanent surface water features on site that could be impacted on.	
ALTERNATIVE	PREFERRED AND ONLY ALTERNATIVE	NO-GO ALTERNATIVE
Nature of impact:	Negative	NO IMPACT
Extent and duration of impact:	Local & Medium-term (potable water) Site & Medium term (sea water)	NO IMPACT
Consequence of impact or risk:	Loss	NO IMPACT
Probability of occurrence:	Unlikely impact on water quality Unlikely impact on water quantity	NO IMPACT
Degree to which the impact may cause irreplaceable loss of resources:	Low	NO IMPACT
Degree to which the impact can be reversed:	Reversible	NO IMPACT
Indirect impacts:	<ul style="list-style-type: none"> Consumption of potable water supplied by the Municipality, generating additional income for the Municipality. 	NO IMPACT
Cumulative impact prior to mitigation:	Low	NO IMPACT
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low	NO IMPACT
Degree to which the impact can be avoided :	Low	NO IMPACT
Degree to which the impact can be managed :	High	NO IMPACT
Degree to which the impact can be mitigated :	High	NO IMPACT
Proposed mitigation:	<p>Implement and follow water saving procedures and methodologies.</p> <ul style="list-style-type: none"> Only the allowed amount may be used from the municipal supply. Place oil traps under stationary machinery, only re-fuel machines at fuelling station, construct structures to trap fuel spills at fuelling station, immediately clean oil and fuel spills and dispose contaminated material (soil, etc.) at licensed sites only. Take care that temporary onsite sanitation facilities are well maintained and serviced regularly. Draw-up and strictly enforce procedures for the storage, handling and transport of different hazardous materials. Ensure vehicles and equipment are in good working order and drivers and operators are properly trained. 	NO IMPACT

	<ul style="list-style-type: none"> • Ensure that good housekeeping rules are applied. • Minimise storage of hazardous substances onsite during construction. • Service and refuel construction vehicles at a fit-for-purpose facility to minimise pollution risks. • Waste materials generated on site must be stored in suitable lidded containers and removed off site to a suitable disposal facility. • Waste separation must be undertaken if practical for recycling. • Provide all workers with environmental awareness training and comply with the requirements of the EMPr. • Provide mobile ablution facilities • Drinking water to be brought on site as per existing practices. • Clear demarcation of access areas, close to salt pan. <ul style="list-style-type: none"> • Waste water (i.e., including process water and grey water) • A biozone system will be used to treat effluent (containerised). • By keeping contaminated and clean water separate and establishing controlled runoff washing bays, the flow and end destination of decontamination washing water will be controlled. • Although erosion and runoff are natural processes it should be managed by maintaining topsoil in any areas not in use and maintaining maximum existing vegetation coverage. • Slow storm water runoff with contoured, low-gradient drains and channels. • Storm water diversion and erosion control contour berms separate clean and contaminated water systems around the pit and infrastructure areas. 	
Residual impacts:	Pooled water could provide drinking source for local fauna.	NO IMPACT
Cumulative impact post mitigation:	Very Low	NO IMPACT
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Very Low	NO IMPACT
Potential impact and risk: Potential Impacts on Biodiversity	<p>IMPACT 4: LIMITED LOSS OF NATURAL VEGETATION AND ECOLOGICAL FUNCTIONING OF NATURAL AND/OR PREVIOUSLY DISTURBED AREAS: The proposed prospecting area footprint will result in an impact on localized ecological functioning, although limited as: bulk sampling, prospecting and mining has already occurred in some places; the tailing storage facility will be situated in an historically excavated areas; access and haul roads exist; and the site camp area will also be on a disturbed area. Transport of materials will be along existing access tracks resulting in little impact on ecological functioning at a local level during the operation phase. The machinery and trucks will continue to disturb local fauna, already accustomed to the existing mining activities.</p> <p>No section of the site is classified as a Critical Biodiversity Area or Ecological Support Area. The ephemeral salt pan is classified as a NFEPA Wetland.</p>	
ALTERNATIVE	PREFERRED AND ONLY ALTERNATIVE	NO-GO ALTERNATIVE

Nature of impact:	Negative	NO IMPACT
Extent and duration of impact:	Site & Medium term	NO IMPACT
Consequence of impact or risk:	Loss	NO IMPACT
Probability of occurrence:	Definite	NO IMPACT
Degree to which the impact may cause irreplaceable loss of resources:	Low	NO IMPACT
Degree to which the impact can be reversed:	Irreversible	NO IMPACT
Indirect impacts:	<ul style="list-style-type: none"> • Soil disturbance caused by vegetation clearing will provide suitable conditions for the establishment and spreading of alien invasive vegetation. • The salt pan is used as an airstrip for aircraft and for drag racing of vehicles, already impacting of the biodiversity of this feature. The prospecting activities are located outside the salt pan. • Removal of alien invasive vegetation is a positive impact, and will benefit the ecological functioning. 	NO IMPACT
Cumulative impact prior to mitigation:	Medium	NO IMPACT
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium	NO IMPACT
Degree to which the impact can be avoided :	Medium	NO IMPACT
Degree to which the impact can be managed :	High	NO IMPACT
Degree to which the impact can be mitigated :	High	NO IMPACT
Proposed mitigation:	<ul style="list-style-type: none"> • Demarcate the sample pit, sample trench, and topsoil stockpiles using green shade cloth to contain the area of disturbance. Leave a 50cm gap between the bottom of the shade cloth and the ground to allow for the movement of small fauna. • Demarcate the sections of existing tracks that may be used to access each sample pit or trench, including the area for turning circles of vehicles. • Conduct a “search and rescue” operation to identify any plants of conservation concern prior to clearing each prospecting pit (footprint of each sample pit is 88m²); and for the increased area required for a prospecting trench, should the sample pit provide an indication of a viable mineral resource for further bulk sampling (0.5Ha), • No indigenous plants outside of the demarcated work areas may be damaged. • Remove alien invasive vegetation if required and ensure ongoing alien vegetation clearing in the sampling pit or trench . 	NO IMPACT

	<ul style="list-style-type: none"> The noise and vibration caused by the earthmoving equipment will disturb mobile fauna that should move away when activities commence. Should any animals be encountered these should be relocated by a suitably trained nature conservation officer. Demarcate areas for the sample pits and trenches and ensure that all other adjacent areas are regarded as no-go areas. The Closure plan must be implemented. 	
Residual impacts:	The noise and vibration caused by the earthmoving equipment will disturb smaller animals (e.g., snakes). These will move away whilst operations are in progress.	NO IMPACT
Cumulative impact post mitigation:	Low	NO IMPACT
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low	NO IMPACT
Potential impact and risk: Contamination & Pollution	IMPACT 5: POTENTIAL FOR SOIL CONTAMINATION, AND WASTE MANAGEMENT DURING OPERATIONAL PHASE: Tailings are to be collected in the tailings storage facility located in the old excavation; overburden; industrial waste (hazardous wastes, oil & grease); and domestic waste	
ALTERNATIVE	PREFERRED AND ONLY ALTERNATIVE	NO-GO ALTERNATIVE
Nature of impact:	Negative	NO IMPACT
Extent and duration of impact:	Site & Short term	NO IMPACT
Consequence of impact or risk:	Loss	NO IMPACT
Probability of occurrence:	Possible	NO IMPACT
Degree to which the impact may cause irreplaceable loss of resources:	Medium	NO IMPACT
Degree to which the impact can be reversed:	Reversible	NO IMPACT
Indirect impacts:	Windblown litter will cause visual blight. The vast area down-wind of the municipal dump is very polluted by unmanaged wind-blown waste. Hydrocarbons are toxic and will cause vegetation die-back and soil poisoning. A lack of waste food management encourages vermin.	NO IMPACT
Cumulative impact prior to mitigation:	High	NO IMPACT
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High	NO IMPACT
Degree to which the impact can be avoided:	High	NO IMPACT

Degree to which the impact can be managed:	High	NO IMPACT
Degree to which the impact can be mitigated:	High	NO IMPACT
Proposed mitigation:	<ul style="list-style-type: none"> ○ Tailings collected within the tailings storage facility in the old excavation. - Sea-water used as part of processing will be collected in the tailings storage facility from where the water will be re-used if possible. ● Overburden, cover, and/or "soft" material including topsoil • Remove and stockpile 300mm topsoil in berms or heaps less than 1,5m high and turn soil or re-use every six months. • Remove and stockpile topsoil building platforms and stockpile areas prior to construction for use to restore disturbed areas. To ensure long-term stability, the restored soil cover should attempt to mimic the pre-mining distribution of soil texture and thickness. • Contaminated soil must be treated by first removing the source of contamination - removing the source of contamination should allow the system to recover without further clean-up required. • Petrochemical spillages to be collected in a drip tray and drum to store excavated spill affected soil for disposal at a registered facility or onsite treatment. • The most promising techniques for in on-site treatment involve bioremediation. Bioremediation involves the use of microorganisms to destroy hazardous contaminants. ● Other non-specification waste - Any product stockpiles left or oversize boulders must be removed and used to backfill excavations. - Waste or rock material used as refill or landscaping, crushed for other applications, or otherwise dealt with responsibly. ● Industrial waste (i.e. including hazardous wastes and oils and greases) • Separation of wastes into classes will ensure that waste is disposed of safely and according to the correct procedure. In order to ensure that waste classes are kept in separate streams, people will be trained on the different waste classes. • Unwanted steel, sheet metal and equipment need to be stored in a demarcated salvage yard. • Recycling and reusing materials may reduce garbage haul fees or generate income through the sale of scrap metal and old equipment. • All steel structures and reinforcing will be discarded or sold as scrap. • All equipment and other items used during the prospecting operation needs to be removed from the site. • Used oils / hydrocarbons fuels / liquids are to be collected in sealed containers (stored on concrete slabs) and removed from site for recycling by a reputable company. 	NO IMPACT

	<ul style="list-style-type: none"> • All waste in the temporary storage area for used lubrication products and other hazardous chemicals will be disposed of at a collection point from where it will be collected by a waste recycling company. • Mobile generators will supply electricity to the machinery. Generator bays will be constructed with the necessary pollution control measures (drip trays). • Clean out content of oil traps and dispose of waste at registered and purpose designed landfill sites. • Hydrocarbon contaminated sludge (collected in oil traps) - Removed from the oil traps and removed from site for recycling (if possible) or disposal at a suitably permitted facility. • All temporary waste storage areas need to be cleaned out and waste removed. • Tyres to be return to supplier or a company that uses old tyres for making door mats, shoes, swings, etc. • Batteries to be return to supplier or dispose at a permitted hazardous waste facility. • Fluorescent tubes to be collected in sealed containers (stored on concrete slabs) and removed from site for disposal at a permitted hazardous waste facility. • Chemical containers to be returned to supplier or disposed of at a legal, permitted facility that is capable of disposing of the waste. (DO NOT sell chemical containers to workers or communities). • Laboratory waste (chemicals) - Returned to supplier or disposed of at a permitted facility that is capable of disposing of the waste. • Industrial chemicals (laboratory waste) - Returned to supplier or disposed of at a permitted facility that is capable of disposing of the waste. These liquid wastes cannot be disposed of on the waste dumps. • Domestic waste (i.e., waste that is generated from the accommodation and offices) • Domestic waste - Separated at source into recyclable products. These must then be removed and recycled by recognised contractors. (Note that the mine is responsible for the waste from cradle to grave). • Disposal at a registered and officially permitted commercial or municipal landfill site is the most cost-effective option for materials that cannot be recycled. • Domestic waste generated by workers needs to be sorted and all biodegradable waste must be stored in separate drums provided for. • This biodegradable waste will be dumped in a landfill provided for onsite. 	
Residual impacts:	Recycling of waste material creates employment.	NO IMPACT
Cumulative impact post mitigation:	Low	NO IMPACT
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low	NO IMPACT

Potential impact and risk: Potential Impacts on Visual Landscape	IMPACT 6: VISUAL INTRUSION: Caused by the machinery, topsoil and overburden stockpiles, cleared areas, and movement of trucks on site.	
ALTERNATIVE	PREFERRED AND ONLY ALTERNATIVE	NO-GO ALTERNATIVE
Nature of impact:	Negative	
Extent and duration of impact:	Site & short term	
Consequence of impact or risk:	Loss	
Probability of occurrence:	Definite	
Degree to which the impact may cause irreplaceable loss of resources:	Low	
Degree to which the impact can be reversed:	Reversible	
Indirect impacts:	The site is flat, with views obstructed by low level vegetation in most places, effectively screening the interspersed sampling pits or trenches.	
Cumulative impact prior to mitigation:	Low	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low	
Degree to which the impact can be avoided :	Medium	
Degree to which the impact can be managed :	Medium	
Degree to which the impact can be mitigated :	High	
Proposed mitigation:	<ul style="list-style-type: none"> The site shall be kept neat and tidy at all times. Equipment must be kept in designated areas and storing/stockpiling shall be kept orderly. Mitigation of the visual impact by screening of prospecting pits or trenches with green shade cloth. 	
Residual impacts:	Good housekeeping will ensure a neat and well-maintained construction area reducing visual impact.	
Cumulative impact post mitigation:	Very Low	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Very Low	
Potential impact and risk: Potential Impacts on Social, and Biophysical Environments	IMPACT 7: EMISSIONS (DUST, VEHICLES & NOISE): Noise and dust will be created by the prospecting and processing activities; from the mining equipment (e.g. front-end loaders) and hauling vehicles that also emit Greenhouse Gases.	

ALTERNATIVE	PREFERRED AND ONLY ALTERNATIVE	NO-GO ALTERNATIVE
Nature of impact:	Negative	NO IMPACT
Extent and duration of impact:	Site and Long Term	NO IMPACT
Consequence of impact or risk:	Loss	NO IMPACT
Probability of occurrence:	Definite	NO IMPACT
Degree to which the impact may cause irreplaceable loss of resources:	Low	NO IMPACT
Degree to which the impact can be reversed:	Low	NO IMPACT
Indirect impacts:	<ul style="list-style-type: none"> • Carbon emissions from vehicle exhausts have a negative impact on the ozone layer. • Residents outside the project site that reside along the hauling roads would be impacted on by noise, dust and vehicle emissions. 	NO IMPACT
Cumulative impact prior to mitigation:	Medium	NO IMPACT
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium	NO IMPACT
Degree to which the impact can be avoided :	Medium	NO IMPACT
Degree to which the impact can be managed :	Medium	NO IMPACT
Degree to which the impact can be mitigated :	Medium	NO IMPACT
Proposed mitigation:	<ul style="list-style-type: none"> • Health and safety equipment is required for workers. • The wetting of the roads helps reduce dust generation during transporting of processing materials. • No amplified music should be allowed on site. • Existing tracks will be used as haul roads and will only be upgraded to facilitate haul trucks by applying dust suppression and/or hardening compound such as Macadamite. • On public roads the vehicles shall adhere to municipal and provincial traffic regulations including speed limits. • Vehicles used on site for the construction related activities shall be maintained and in a good working condition so as to reduce emissions. • Engines shall be turned off when the vehicle is temporarily parked or stationary for long periods. • Incremental clearing of ground cover should take place to minimise exposed surfaces. 	NO IMPACT
Residual impacts:	Dust settling on adjacent vegetation can impact on vegetative growth, which is a short-term impact until the rainfall season.	NO IMPACT
Cumulative impact post mitigation:	Low	NO IMPACT

Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low	
Potential impact and risk: Potential Impacts on archaeological resources	IMPACT 8: POTENTIAL FOR ARCHAEOLOGICAL RESOURCES IMPACTS Refer to Appendix D, page 199. Direct impacts to archaeological resources would occur primarily during the construction phase in terms of stone age sites and the copper railway (e.g. if an excavator drives beyond the demarcated area during construction). Archaeological resources are fragile and very easily damaged or destroyed, especially in a landscape prone to erosion when the surface is disturbed. These sites have the potential to provide much scientific information on the past inhabitants of the area.	
ALTERNATIVE	PREFERRED AND ONLY ALTERNATIVE	NO-GO ALTERNATIVE
Nature of impact:	Negative	NO IMPACT
Extent and duration of impact:	Regional, permanent	NO IMPACT
Consequence of impact or risk:	Loss of stone age sites and historical copper railway	NO IMPACT
Probability of occurrence:	Highly probable	NO IMPACT
Degree to which the impact may cause irreplaceable loss of resources:	High	NO IMPACT
Degree to which the impact can be reversed:	Low	NO IMPACT
Indirect impacts:	Loss of archaeological resources	NO IMPACT
Cumulative impact prior to mitigation:	High	NO IMPACT
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High	NO IMPACT
Degree to which the impact can be avoided :	High	NO IMPACT
Degree to which the impact can be managed :	High	NO IMPACT
Degree to which the impact can be mitigated :	High	NO IMPACT
Proposed mitigation:	The following recommendations are made: Mandatory avoidance of some areas with 50m buffer, avoidance (with 50m buffer) or archaeological excavation of others The assigned heritage grade and the nature of mitigation go hand in hand as shown in table below (taken from HIA). Many sites are very ephemeral and/or obviously lack cultural materials. These sites are graded GPC and require no further work.	
	Grade	Mitigation
		Purpose of mitigation
		NO IMPACT

	GPC	One	No apparent cultural significance, no mitigation required.	
	GPB	Small sample	The small sample provides a record of the site and its contents with the main record anticipated to be of the shellfish. This sampling also serves as a test excavation to determine whether further excavations might be required. This would be in the event that the initial sample produces an elevated density of cultural materials. Some sites were allocated slightly more time because the chances of encountering cultural materials seemed higher from the initial surface examination. Note that as a precautionary measure in some large clusters of scatters (that might represent single site complexes) where only certain waypoints have been suggested for mitigation, all waypoints have been assigned the same grade so that if significant subsurface deposits are found the whole site will be available for potential further investigation.	
	GPA	Excavation	Sites where many cultural materials were evident on the surface were assigned a grade of GPA. These are sites with a medium-high local cultural significance because there is clearly much scientific data to be gained through their excavation. At these sites a fairly large area should be sampled.	
	IIIA	Avoidance and <i>in situ</i> protection	This grade was allocated to all finds related to the historic copper railway. The copper mining landscape is of very high local cultural significance and must not be disturbed by prospecting.	
	<p>Sampling of sites graded GPB will entail excavation of at least one square meter, and more where this becomes warranted (i.e. if many cultural materials are found).</p> <p>More significant sites were graded GPA and will need a larger scale excavation that samples a wider area and gathers valuable scientific data. This work would have to be done under a permit issued to the consulting archaeologist by SAHRA.</p> <p>It is noted, however, that the intention is to try and avoid as many archaeological sites as possible, so mitigation as described here will only be required for those sites that cannot be avoided.</p> <p>For avoidance, buffers of 30 m around sites are required by SAHRA. To effect this, buffers of 50 m around the waypoints have been provided to account for the area of the site plus a buffer of at least 30 m for all waypoints of GPB or higher grading.</p> <p>Management measures are also required. This will entail the careful planning by the developer of the project layout, both the test pitting phase and the bulk sampling phase. Maps should be prepared showing all areas that will require disturbance. These should be examined by an archaeologist and submitted to SAHRA for the record. Any mitigation required will need to be</p>			

	decided upon and commissioned. Prospecting work may not commence in the relevant areas until SAHRA has approved of the disturbance plan (if no impacts are expected) or the mitigation report.	
Residual impacts:	None identified for insignificant findings	NO IMPACT
Cumulative impact post mitigation:	Low	NO IMPACT
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low	NO IMPACT
Potential impact and risk: Potential Impacts on graves	IMPACT 9: POTENTIAL FOR IMPACTS ON GRAVES: Refer to Appendix D, page 199. Impacts to graves could occur during the construction phase. It is quite possible that graves could be found during excavation. They are very sensitive to disturbance.	
ALTERNATIVE	PREFERRED AND ONLY ALTERNATIVE	NO-GO ALTERNATIVE
Nature of impact:	Direct, Negative	NO IMPACT
Extent and duration of impact:	Local & Permanent	NO IMPACT
Consequence of impact or risk:	Loss	NO IMPACT
Probability of occurrence:	Low	NO IMPACT
Degree to which the impact may cause irreplaceable loss of resources:	High	NO IMPACT
Degree to which the impact can be reversed:	Low	NO IMPACT
Indirect impacts:	Loss of graves	NO IMPACT
Cumulative impact prior to mitigation:	Low	NO IMPACT
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High	NO IMPACT
Degree to which the impact can be avoided :	High	NO IMPACT
Degree to which the impact can be managed :	Medium	NO IMPACT
Degree to which the impact can be mitigated :	High	NO IMPACT
Proposed mitigation:	The following recommendations are made: There are no pre-construction mitigation measures that can be applied. However, provision needs to be made for the immediate protection and reporting of any accidental finds of human remains to an archaeologist for evaluation and rescue as necessary. The SAHRA protocols at the time for dealing with human remains will need to be followed.	

Residual impacts:	None identified for insignificant findings	NO IMPACT
Cumulative impact post mitigation:	Low	NO IMPACT
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium	NO IMPACT
Potential impact and risk: Potential Impacts on Cultural landscape	IMPACT 10: POTENTIAL FOR CULTURAL LANDSCAPE IMPACTS: Refer to Appendix D, page 199. The extreme density of archaeological resources means that the landscape is also a precolonial cultural landscape. The cultural landscape can be easily affected by visual intrusion from inappropriate development. The proposed project is consistent with the past mining and prospecting activities that have happened in the area but without rehabilitation the quality of the landscape can be further diminished.	
ALTERNATIVE	PREFERRED AND ONLY ALTERNATIVE	NO-GO ALTERNATIVE
Nature of impact:	Direct, Negative	NO IMPACT
Extent and duration of impact:	Local & short term	NO IMPACT
Consequence of impact or risk:	Loss	NO IMPACT
Probability of occurrence:	Definite	NO IMPACT
Degree to which the impact may cause irreplaceable loss of resources:	Low	NO IMPACT
Degree to which the impact can be reversed:	High	NO IMPACT
Indirect impacts:	Loss of precolonial cultural landscape	NO IMPACT
Cumulative impact prior to mitigation:	Low	NO IMPACT
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low	NO IMPACT
Degree to which the impact can be avoided :	Low	NO IMPACT
Degree to which the impact can be managed :	Medium	NO IMPACT
Degree to which the impact can be mitigated :	High	NO IMPACT
Proposed mitigation:	The following recommendations are made: The only mitigation measure suggested is to ensure that correct rehabilitation measures are applied. This measure has already been included into the project design.	NO IMPACT
Residual impacts:	None identified	NO IMPACT
Cumulative impact post mitigation:	Low	NO IMPACT

Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low	NO IMPACT
Potential impact and risk: Potential Impacts on paleontological resources	IMPACT 11: PALAEOLOGICAL IMPACTS The impact on paleontological resources takes place during all earthmoving activities. <ol style="list-style-type: none"> 1. Loss of fossil bones from excavations in the marine Avontuur, Hondeklipbaai and Curlew Strand formations. 2. Loss of fossil bones from excavations in the aeolian formations, included pedocretes and pan deposits. 3. Loss of fossil shells from excavations in the Avontuur and Hondeklipbaai formations. 4. Loss of fossil shells from excavations in the marine Curlew Strand Formation raised beaches. 	
ALTERNATIVE	PREFERRED AND ONLY ALTERNATIVE	NO-GO ALTERNATIVE
Nature of impact:	Negative	NO IMPACT
Extent and duration of impact:	<ol style="list-style-type: none"> 1. Local & Permanent 2. Local& Permanent 3. Local& Permanent 4. Local& Permanent 	NO IMPACT
Consequence of impact or risk:	Permanent loss of material palaeontological heritage (fossil specimens) and the scientific discovery and knowledge implicit in their origin and context	NO IMPACT
Probability of occurrence:	Probable	NO IMPACT
Degree to which the impact may cause irreplaceable loss of resources:	Without mitigation and rescue of unearthed fossils there will be a COMPLETE LOSS OF RESOURCES within the footprints of the development.	NO IMPACT
Degree to which the impact can be reversed:	Irreversible	NO IMPACT
Indirect impacts:	The material fossil evidence of “deep time” is embedded in the creation of the sacred landscape and contributes to the “sense of place” cultural aesthetic of the region. The loss of fossils and concomitant interpreted knowledge impoverishes the tangible testimony of the prehistoric landscape and ecological context of ancient humans.	NO IMPACT
Cumulative impact prior to mitigation:	The cumulative impact of coastal developments and coastal mining is the inevitable and permanent loss of fossils and the associated scientific implications. As mentioned, the impact of both the finding and the loss of fossils is permanent. Diligent and successful mitigation contributes to a positive cumulative impact as the rescued fossils are preserved and accumulated for scientific study. Even though just a very minor portion of the bone fossils exposed in coastal excavations has been seen and saved, the rescued fossils have proved to be of fundamental scientific value.	NO IMPACT
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	<ol style="list-style-type: none"> 1. Medium 2. Medium 3. Medium 4. Medium 	NO IMPACT

Degree to which the impact can be avoided:	Low	NO IMPACT
Degree to which the impact can be managed:	Low to moderate	NO IMPACT
Degree to which the impact can be mitigated:	Moderate	NO IMPACT
Proposed mitigation:	<ol style="list-style-type: none"> 1. Loss of fossil bones from excavations in the marine Avontuur, Hondeklipbaai and Curlew Strand formations. <ul style="list-style-type: none"> • Prospecting personnel to be alert for rare fossil bones and follow “Fossil Finds Procedure”. • Cease construction on discovery of fossil bones and protect fossils from further damage. • Contact appointed palaeontologist providing information and images. • Palaeontologist will assess information and establish suitable response, such as the importance of the find and recommendations for preservation, collection and record keeping. 2. Loss of fossil bones from excavations in the aeolian formations, included pedocretes and pan deposits. <ul style="list-style-type: none"> • Prospecting personnel to be alert for rare fossil bones and follow “Fossil Finds Procedure”. • Cease construction on discovery of fossil bones and protect fossils from further damage. • Contact appointed palaeontologist providing information and images. • Palaeontologist will assess information and establish suitable response, such as the importance of the find and recommendations for preservation, collection and record keeping. 3. Loss of fossil shells from excavations in the Avontuur and Hondeklipbaai formations. <ul style="list-style-type: none"> • Prospecting personnel and ECO to be aware that a substantial temporary exposure of marine shelly beds may require sampling and recording. • In the event of a large exposure of shell beds, the appointed palaeontologist must be notified and provided with information and images. Palaeontologist will assess information and establish suitable response, such as the importance of the find and recommendations for sample collection and record keeping. • Selected exposed fossiliferous sections in earthworks recorded and sampled by appointed palaeontologist. 4. Loss of fossil shells from excavations in the marine Curlew Strand Formation raised beaches. <ul style="list-style-type: none"> • Prospecting personnel and ECO to be aware that a substantial temporary exposure of marine shelly beds may require sampling and recording. • In the event of a large exposure of shell beds, the appointed palaeontologist must be notified and provided with information and images. Palaeontologist will assess information and establish suitable response, such as the importance of the find and recommendations for sample collection and record keeping. 	NO IMPACT

	<ul style="list-style-type: none"> Selected exposed fossiliferous sections in earthworks recorded and sampled by appointed palaeontologist. 	
Residual impacts:	Negative residual impact arises from the unavoidable loss of fossils of unknown significance in spite of mitigation efforts. Positive residual impact arises from the successful rescue of fossil material for posterity, resulting in material for future research, employment opportunities for budding, young researchers and enhanced insights into the prehistory of the Northern Cape.	NO IMPACT
Cumulative impact post mitigation:	Medium (for LSA Rock Shelters) Medium-Low (for more recent occupation of area)	NO IMPACT
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	1. Medium 2. Medium 3. Medium 4. Medium	NO IMPACT
Potential impact and risk: Potential Impacts on Socio-Economic Environment	IMPACT 12: CREATION OF EMPLOYMENT & JOB SECURITY DURING OPERATIONAL PHASE WITH LOCAL AND REGIONAL ECONOMIC SPIN-OFFS	
ALTERNATIVE	PREFERRED AND ONLY ALTERNATIVE	NO-GO ALTERNATIVE
Nature of impact:	Positive	Negative
Extent and duration of impact:	Local, district and Long term	Local, District & Long Term
Consequence of impact or risk:	Gain	Loss
Probability of occurrence:	Definite	Definite
Degree to which the impact may cause irreplaceable loss of resources:	No loss	Medium
Degree to which the impact can be reversed:	Irreversible (employment can be lost by an individual due to non-performance but the job provision is irreversible)	Reversible
Indirect impacts:	<ul style="list-style-type: none"> Upskilling Local economic spin-offs through increased income earned, and through purchasing of local materials required for operational activities. Income generation for landowners in a time of severe drought where livestock farming is not sustainable. 	<ul style="list-style-type: none"> No upskilling No local economic spin-offs due to lack of income earned, and no ongoing supply of diamonds to local and international markets. Opportunity cost for landowner and applicant.
Cumulative impact prior to mitigation:	Medium (-)	Medium (-)
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium (-)	Medium (-)

Degree to which the impact can be avoided :	Very low	Medium
Degree to which the impact can be managed :	High	Medium
Degree to which the impact can be mitigated :	High	Medium
Proposed mitigation:	<ul style="list-style-type: none"> • Employment of local previously disadvantaged labour wherever possible, with provision of training (upskilling) 	No mitigation possible with No-Go alternative.
Residual impacts:	The upliftment of unemployed people, with positive impact on standard of living for their families. Local and regional economic spin-offs from investment through Social Labour Plan.	No job creation or potential for upskilling of previously disadvantaged labour.
Cumulative impact post mitigation:	Medium (+)	Medium (-)
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium (+)	Medium (-)

Table 22: Impact Assessment during Decommissioning and Closure Phase

DECOMMISSIONING & CLOSURE PHASE		
Potential impact and risk: Potential Impacts on Biophysical Environment	IMPACT 1: REHABILITATION OF PROSPECTED AREAS: As per Rehabilitation, Decommissioning and Mine Closure Plan (Appendix F)	
ALTERNATIVE	ALTERNATIVE 1 (PREFERRED)	NO-GO ALTERNATIVE
Nature of impact:	Positive	NO IMPACT
Extent and duration of impact:	<ul style="list-style-type: none"> Local and Long term 	NO IMPACT
Consequence of impact or risk:	Gain	NO IMPACT
Probability of occurrence:	Definite	NO IMPACT
Degree to which the impact may cause irreplaceable loss of resources:	No loss	NO IMPACT
Degree to which the impact can be reversed:	Reversible	NO IMPACT
Indirect impacts:	<ul style="list-style-type: none"> Infilling of approximately 10% of the historical pit. 	NO IMPACT
Cumulative impact prior to mitigation:	Medium	NO IMPACT
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium	NO IMPACT
Degree to which the impact can be avoided :	Very low (rehabilitation is mandatory)	NO IMPACT
Degree to which the impact can be managed :	High	NO IMPACT
Degree to which the impact can be mitigated :	High	NO IMPACT
Proposed mitigation:	<ul style="list-style-type: none"> Implementation of Final Rehabilitation, Decommissioning and Mine Closure Plan. Pit development will be the same as for trench development (Bulk Sampling), but on a much smaller scale. There will only ever be three prospecting pits open at any given time, one in the process of rehabilitation, one that is operational and one in the process of development and it is anticipated that no more than 30 such pits will be developed. After results are logged the pit will be backfilled immediately for security and safety reasons before the project is moved to the next pit position. In case of sudden closure of the project there will only be one open pit to be dealt with as part of final decommissioning and rehabilitation. The existing historical excavation is estimated at 50 000m³ at an average depth of 5 meters, which means that even if the maximum of 10 bulk samples is excavated only 10% of the excavation will be filled. Therefore, at final closure the floor of the excavation needs to be levelled and the sides sloped to create an even depression, or if prospecting advances to full scale mining then the excavation will remain for processing during mining activities. The focus of topographic rehabilitation may not be obvious at the time of mine planning and must be addressed as the mine develops and the Closure Plan must be reviewed periodically for continued relevance in the light of changed prospecting path or long-term plans. . Regular inspections and audits will be used as management system to ensure compliance. Compacted areas shall be scarified after use during decommissioning and rehabilitation. Any stored topsoil shall be spread over the scarified surface. Other mitigating with regard to residual environmental impact Implementing screening as part of the cleaning activities before materials are moved from the mine. 	NO IMPACT

	<ul style="list-style-type: none"> The infrastructure area will be screened for petrochemical spills and cleaned and waste from the temporary storage facility will be removed and the area cleaned. Any compacted movement areas will be screened for petrochemical spills and cleaned before it is ripped and levelled. Redundant structures will be removed for use elsewhere or demolished and discarded. Remove all power and water supply installations not to be retained by landowner in terms of section 44 of the MPRDA. Final walk through of complete mining lease area to ensure no mining related waste and of re-usable infrastructure remain on site. As part of this phase training of personnel in the implementation of the Closure Plan will be done and the implementation of the environmental awareness plan will be an ongoing process. 	
Residual impacts:	Increase in natural habitat following rehabilitation processes.	NO IMPACT
Cumulative impact post mitigation:	Very Low	NO IMPACT
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Very Low	NO IMPACT
Potential impact and risk: Potential Impacts on Socio-Economic Environment	IMPACT 2: CREATION OF EMPLOYMENT, JOB SECURITY WITH LOCAL AND REGIONAL ECONOMIC SPIN-OFFS DURING DECOMMISSIONING & CLOSURE PHASE	
ALTERNATIVE	PREFERRED AND ONLY ALTERNATIVE	NO-GO ALTERNATIVE
Nature of impact:	Positive	Negative
Extent and duration of impact:	Local, district and Short term	Local, District & Short Term
Consequence of impact or risk:	Gain	Loss
Probability of occurrence:	Definite	Definite
Degree to which the impact may cause irreplaceable loss of resources:	No loss	Medium
Degree to which the impact can be reversed:	Irreversible (employment can be lost by an individual due to non-performance but the job provision is irreversible)	Reversible
Indirect impacts:	<ul style="list-style-type: none"> Upskilling. Local economic spin-offs through increased income earned. 	<ul style="list-style-type: none"> No upskilling No local economic spin-offs due to lack of income earned. Opportunity cost for landowner and applicant.
Cumulative impact prior to mitigation:	Medium (-)	Medium (-)
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low	Medium (-)
Degree to which the impact can be avoided :	Very low	Medium
Degree to which the impact can be managed :	High	Medium
Degree to which the impact can be mitigated :	High	Medium
Proposed mitigation:	<ul style="list-style-type: none"> Ongoing employment of local previously disadvantaged labour wherever possible, with provision of training (upskilling) 	No mitigation possible with No-Go alternative.

Residual impacts:	The upliftment of unemployed people, with positive impact on standard of living for their families.	No job creation or potential for upskilling of previously disadvantaged labour.
Cumulative impact post mitigation:	Medium (+)	Medium (-)
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium (+)	Medium (-)