No.	ENVIRON-MENTAL IMPACT	IMPACT SOURCE/DESCRIPTION	Intensity	Frequency	Duration	Severity	Extent	Consequence	Probability	Impact Significance			MITIGATION
										Without Mitigation	Mitigation Confidence	With Mitigation	Mitigation Measure
1 CONSTRUCTION PHASE													
1.1 DIRECT CONSTRUCTION IMPACTS													
PHYSICAL NATURAL ENVIRONMENT													
SOILS													
1.1.1	Compaction of soils	Movement of vehicles and machinery at the site for fence and access road construction.	2	2	2	2	2	2	0.60	1.20	Moderate	Low	• Equipment movement on top of the exposed soil will be limited to avoid topsoil compaction and subsequent damage to the soils and seedbank. • Ripping of soil in areas where soil has been compacted. • Impacted area to be minimised.
LAND CAPABILITY													
1.1.2	Loss of natural land and grazing land	Loss of vegetation cover from site clearance for the establishment of the cemetery fence and access roads. Loss of grazing land from fencing off area for the cemetery.	2	2	4	2.7	1	1.8	1	1.83	Low	Low	• Natural vegetation cover needs to be restored at impacted areas where possible. Mitigation for the loss of grazing land is limited other than the "no-go" option.
LAND USE													
1.1.3	Change in land use	Change in land use from natural to a cemetery.	2	2	5	3	1	2	1	2.00	Low	Moderate	• Mitigation for the change in land use is limited other than the "no-go" option.
NOISE													
1.1.4	Movement of vehicles	Movement of vehicles during construction phase may generate noise.	1	2	2	1.7	2	1.8	0.6	1.10	High	Low	• Minimise movement of traffic along public roads as far as reasonably possible. • The contractor shall ensure that the workers do not create unnecessary noise such as hooting or shouting. • Maintain vehicles in good condition to prevent unnecessary noise outputs.
SURFACE WATER													
1.1.5	Disturbance to watercourses	Disturbance to the drainage lines through construction activities.	2	2	3	2.3	2	2.2	0.4	0.87	Moderate	Low	• Limit the footprint area of any development to what is absolutely essential in order to minimise environmental damage • No activities are to take place within a watercourse.

No.	ENVIRON-MENTAL IMPACT	IMPACT SOURCE/DESCRIPTION	Intensity	Frequency	Duration	Severity	Extent	Consequence	Probability	Impact Significance			MITIGATION
										Without Mitigation	Mitigation Confidence	With Mitigation	Mitigation Measure
1.1.6	Contamination of surface water run-off	The inappropriate management and handling of fuel, oil and other potentially hazardous chemicals and substances during the construction period could result in potentially negative impacts on surface water quality. Poor placement and maintenance of temporary sanitary arrangements (i.e. portable toilets) can also result in detrimental impacts on water resources.	4	2	3	3	4	3.5	0.6	2.10	Moderate	Low	• All spills should be immediately cleaned up and treated accordingly • Chemical toilets must be appropriately managed and regularly cleaned out to prevent contamination of water resources. • Erosion sensitive areas must be identified and regular monitoring undertaken to ensure once the impact occurs it is stabilised and rehabilitated immediately.
GROUNDWATER													
1.1.7	Groundwater contamination	The inappropriate management and handling of fuel, oil and other potentially hazardous chemicals and substances during the construction period could result in potentially negative impacts on ground water quality. Poor placement and maintenance of temporary sanitary arrangements (i.e. portable toilets) can also result in detrimental impacts on water resources.	4	2	3	3	4	3.5	0.6	2.10	Moderate	Low	• Use drip trays under machinery, vehicles and equipment with minor fuel or hydraulic fluid leaks. • Repairs and maintenance to machinery, vehicles and equipment must not be done on site. • Implement measures to prevent the contamination of soils to prevent contamination of groundwater resources. The potential impacts from hydrocarbon groundwater contamination such as vehicle oil/fuel leaks, and oil spillage should be prevented by providing vehicles with drip trays.
AIR QUALITY													
1.1.8	Increase in dust fallout. Increase in the concentration of suspended particulates, specifically fine, inhalable particulates.	Topsoil stripping and vegetation clearing for fence and access road construction. Vehicle movement along unsurfaced roads.	2	2	2	2	2	2	0.4	0.80	Moderate	Low	• Minimise vehicle movements on unsurfaced roads as far as reasonably possible. • Speed limits on unsealed roads will be limited to a maximum speed consistent with the minimisation of dust generation. Nominal speed limit of 30 km/h applies unless otherwise marked. • Complaints regarding dust to be registered in the complaints register and to be investigated and managed in accordance with the incident reporting procedures. • Rehabilitate disturbed area. • Control measures will be applied at the construction area such as dust suppression using water and chemicals (if required).
CLIMATE AND GREENHOUSE GAS EMISSIONS													
1.1.9	Contribution to climate change due to greenhouse gas emissions.	Vehicles and machinery used during the construction phase contributing to greenhouse gas emissions.	2	2	2	2	2	2	0.4	0.80	Moderate	Low	• Maintain machinery, vehicles and equipment in good condition to prevent unnecessary emissions. • Plan vehicle logistics to minimise the operational hours and distances travelled.

No.	ENVIRON-MENTAL IMPACT	IMPACT SOURCE/DESCRIPTION	Intensity	Frequency	Duration	Severity	Extent	Consequence	Probability	Impact Significance			MITIGATION
										Without Mitigation	Mitigation Confidence	With Mitigation	Mitigation Measure
BIOLOGICAL NATURAL ENVIRONMENT													
PLANT LIFE													
1.1.10	Loss of protected species or species of conservation importance.	Damage and removal of protected trees within the protected Kathu Woodland.	5	2	4	3.7	2	2.8	1	2.83	High	Low	• Damage to and removal of protected species of vegetation is prohibited unless permits for removal from the Department of Agriculture, Fisheries and Forestry (DAFF) and the Department of Environment and Nature Conservation (DENC) are in place (licenses and permits are required where protected tree and plant species cannot be avoided and have to be removed, respectively). There are some species e.g. *Acacia erioloba* on site that would require a permit should they need to be moved. • Trees that are removed should be replanted at a location discussed with DAFF/DENC. If trees cannot be replanted, new trees should be planted of the same species that were removed at a location discussed with DAFF/DENC.
ANIMAL LIFE													
1.1.111	Disturbance to animal life	Disturbance of habitats impacting animal movements and distribution, noise impacting animal movements and distribution, potential poaching.	2	2	4	2.7	1	1.8	1	1.83	Moderate	Low	• Any fauna directly threatened by the construction activities should be removed to a safe location by the SHEQ officer or other suitably qualified person. • Minimise footprint areas of disturbance • The collection, hunting or poaching of any animals at the site should be strictly forbidden. Personnel should not be allowed to wander off the demarcated construction site. • Strict penalties for poaching need to be imposed. • There needs to be environmental awareness training of staff.
SENSITIVE LANDSCAPES													
1.1.12	Disturbance to the Protected Kathu Woodland.	Damage and removal of protected trees within the protected Kathu Woodland which the cemetery is located within.	5	2	4	3.7	2	2.8	1	2.83	High	Low	• Damage to and removal of protected species of vegetation is prohibited unless permits for removal from the Department of Agriculture, Fisheries and Forestry (DAFF) and the Department of Environment and Nature Conservation (DENC) are in place (licenses and permits are required where protected tree and plant species cannot be avoided and have to be removed, respectively). There are some species e.g. *Acacia erioloba* , *Boscia albitrunca* on site that would require a permit should they need to be moved. • Trees that are removed should be replanted at a location discussed with DAFF/DENC. If trees cannot be replanted, new trees should be planted of the same species that were removed at a location discussed with DAFF/DENC.
SOCIAL AND ECONOMIC ENVIRONMENT													
SOCIO-ECONOMICS													
1.1.13	Job opportunities	Minimal job opportunities will be created for the construction phase of the cemetery expansion.	1	1	2	1.3	1	1.2	1	1.17	Moderate	Moderate	• Preference should be given to people in the local area. • The recruitment strategy to be communicated to the key stakeholders. • Local goods and services to be procured wherever reasonably possible. • Quotas for local procurement to be set in the specification for contractors. • Local sub-contractors to be used wherever reasonably possible.
1.1.14	Providing increased burial area.	Providing residents of the Kathu area with burial space as the existing cemetery is reaching full capacity.	2	4	5	3.7	4	3.8	1	3.83	Not applicable	High	• No mitigation necessary.

No.	ENVIRON-MENTAL IMPACT	IMPACT SOURCE/DESCRIPTION	Intensity	Frequency	Duration	Severity	Extent	Consequence	Probability	Impact Significance			MITIGATION
										Without Mitigation	Mitigation Confidence	With Mitigation	Mitigation Measure
TRAFFIC													
1.1.15	Increase traffic during construction	Increased vehicle movement during the construction of the cemetery fence and access road.	2	2	2	2	3	2.5	0.4	1.00	Moderate	Very Low (Neg)	• Appropriate speed limits for all vehicles must be strictly enforced to reduce the dust nuisance for the surrounding areas. Traffic impacts are not expected to be significant.
VISUAL ASPECTS													
1.1.16	Changes in visual character of the area	Removal of vegetation and establishment of the cemetery fence and access road.	2	1	5	2.7	1	1.8	0.8	1.47	Low	Moderate	• Natural vegetation cover needs to be restored at impacted areas, where possible.
1.1.17	Sense of place	Visual, noise and dust impacts from fence construction.	1	2	5	2.7	1	1.8	0.4	0.73	Low	Very Low (Neg)	• The existing cemetery is adjacent to the proposed extension, thus the sense of place is not expected to change. • Natural vegetation cover needs to be restored at impacted areas, where possible.
CULTURAL, HERITAGE AND PALAEONTOLOGICAL RESOURCES													
1.1.18	Disturbance of palaeontological resources	Excavation activities for the erection of the fence may unearth palaeontological resources.	5	4	5	4.7	3	3.8	0.6	2.30	Moderate	Moderate	• The subterranean presence of palaeontological resources is always a distinct possibility. Care should therefore be taken during any activities in case any of these are accidentally discovered. • The ECO for this project must be made aware of the fact that the windblown sand of the Gordonia Formation might contain fossils of root casts, burrows and rare vertebrate remains. Recording of these fossils will contribute significantly to our understanding of the palaeo-environments that prevailed in the area. • If significant fossil finds (e.g. vertebrate remains, bones, burrows, fresh water shells) are recorded during excavations for poles for the fence a qualified palaeontologist must be employed to apply for a collection permit to collect the fossils according the SAHRA specifications.

No.	ENVIRON-MENTAL IMPACT	IMPACT SOURCE/DESCRIPTION	Intensity	Frequency	Duration	Severity	Extent	Consequence	Probability	Impact Significance			MITIGATION
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1.1.19	Disturbance of archaeological sites and other sites of heritage importance	Movement of people and vehicles on site and the clearance of areas to establish the fence and access roads may impact sites of heritage/archaeological importance. The proposed construction activities might unearth artefacts of cultural or historic value.	5	4	5	4.7	3	3.8	0.8	3.07	High	Moderate	• The subterranean presence of archaeological and/or historical sites features or artefacts are always a distinct possibility. Care should therefore be taken during any activities in case any of these are accidentally discovered. • It is recommended that a set of test excavation be done to determine presence and extent of an archaeological deposit. • If a deposit is identified a controlled sampling of the material found should be done. • This work must be done in such a way as to augment the current research questions and field work such as the excavations at the Kathu Townlands Site and Kathu Pan. • These test excavations and sampling must be done after a permit has been granted under Section 35 of the NHRA (Act 25 of 1999) to a qualified and experienced Stone Age archaeologist. • An archaeologist suitably qualified in Stone Age fieldwork and research must be appointed to undertake an Archaeological Watching Brief for the Construction Phase of the project. The appointed archaeologist will be responsible for the following: o Provide training to the project Environmental Control Office (ECO) in Stone Age archaeology and the identification of Stone Age artefacts and sites. The ECO will be responsible for daily on-site monitoring during the construction phase with the appointed archaeologist visiting the site every two weeks, or at a lower frequency as recommended by the archaeologist. o On-site assessment of any Stone Age material exposed during construction and the provision of recommendations for the way in which the exposed material must be mitigated. o Compile and submit an archaeological monitoring report at the end of the monitoring process. o Should any Stone Age material or any archaeological material be identified, all construction work in that area must immediately stop and the ECO or archaeologist (if he is already present on site) must demarcate a construction free area around the discovery. If the ECO made the discovery, the archaeologist must be contacted immediately to visit the construction site to assess the exposed material. After assessing the exposed material the archaeologist would provide recommendations for the exposed material which may range from destruction without mitigation (if the exposed material is found to be of little significance) to archaeological mitigation (if the exposed material is found to be significant). The Stone Age or archaeological material will not be disturbed or relocated until the necessary permits have been obtained where applicable.

No.	ENVIRON-MENTAL IMPACT	IMPACT SOURCE/DESCRIPTION	Intensity	Frequency	Duration	Severity	Extent	Consequence	Probability	Impact Significance			MITIGATION
										Without Mitigation	Mitigation Confidence	With Mitigation	Mitigation Measure
1 CONSTRUCTION PHASE													
1.2 INDIRECT CONSTRUCTION IMPACTS													
PHYSICAL NATURAL ENVIRONMENT													
AIR QUALITY													
1.2.1	Dust generation	Dust can affect visibility and traffic safety. When dispersed, the dust could be a nuisance to nearby receptors and can settle on plants thereby negatively impacting their vigour and palatability and reducing the grazing capacity in the area.	2	2	2	2	2	2	0.4	0.80	Moderate	Very Low	• Minimise movement of traffic as far as reasonably possible. • Unsealed access roads and road verges of sealed roads should be watered by means of water carts (if required). • Unsealed laydown areas should be watered as required by means of water carts (if required). • Speed limits on unsealed roads will be limited to a maximum speed consistent with the minimisation of dust generation. Nominal speed limit of 40 km/h applies unless otherwise marked. • All installed dust control equipment, such as water sprays, shall be operated and maintained to prevent or minimise fugitive dust emissions.
BIOLOGICAL NATURAL ENVIRONMENT													
PLANT LIFE													
1.2.2	Alien and invasive Plants	The disturbance of the soil surface could provide opportunity for alien and invasive plant species to establish and proliferate.	3	2	3	2.7	2	2.3	0.6	1.40	Moderate	Low	• In terms of the amendments to the regulations under the Conservation of Agricultural Resources Act, 1983 and Section 28 of the National Environmental Management Act, 1998, land users are legally responsible for the control of invasive alien plants on the properties and it is therefore recommended that declared weed and invader species be removed from the subject property areas where the construction takes place. • This action must be followed up regularly to prevent regrowth or seedling growth. • It must be continuously monitored.
SENSITIVE LANDSCAPES													
1.2.3	Ecosystem Changes	Fencing off the cemetery area could impact animal movements, which may contribute to ecosystem changes.	3	2	4	3	2	2.5	0.6	1.50	Moderate	Low	• Minimise footprint areas of disturbance. • Minimise noise disturbance as described in 'direct construction impacts'. • Minimise impacts to water resources as described in the 'direct construction impacts'. • Mitigation for the loss of grazing land and animal movements is not really possible other than the "no-go" option. The surrounding area is similar to the area being used for the cemetery, thus this impact is not expected to be significant, as surrounding areas can provide the same use.

No.	ENVIRONMENTAL IMPACT	IMPACT SOURCE/DESCRIPTION	Impact Significance Incremental (additional) Impacts	Recommendations
1 CONSTRUCTION PHASE				
1.3 CUMULATIVE CONSTRUCTION IMPACTS				
PHYSICAL NATURAL ENVIRONMENT				
NOISE				
1.3.1	Movement of vehicles	There is not much noise in the surrounding area and the area consists of mainly open veld. The proposed project will generate minimal noise through the movement of construction vehicles and machinery during construction. A very limited, short term increase in the level of noise will be caused by the proposed project.	Very Low / insignificant	Recommendations as per the construction phase.
SURFACE WATER				
1.3.2	Disturbance to watercourses	Disturbance to the drainage lines through construction activities. It is not expected that the project will impact on drainage lines significantly, as the cemetery will be outside of the drainage lines and activities are expected to be restricted to the proposed project area.	Very Low	Recommendations as per the construction phase.
1.3.3	Contamination of surface water run-off	The inappropriate management and handling of fuel, oil and other potentially hazardous chemicals and substances during the construction period could result in potentially negative cumulative impacts on surface water quality. Poor placement and maintenance of temporary sanitary arrangements (i.e. portable toilets) can also result in detrimental cumulative impacts on water resources. Provided that the correct management of the site is implemented, it is not expected that construction activities should contribute significantly to the decrease in surface water quality and quantity.	Very Low	Recommendations as per the construction phase.
GROUNDWATER				
1.3.4	Groundwater contamination	The inappropriate management and handling of fuel, oil and other potentially hazardous chemicals and substances during the construction period could result in potentially negative impacts on ground water quality. Poor placement and maintenance of temporary sanitary arrangements (i.e. portable toilets) can also result in detrimental impacts on water resources. It is assumed that groundwater quality may already be impacted by the existing cemetery, but this has not been tested. Provided that the correct management of the site is implemented, it is not expected that construction activities should contribute significantly to the decrease in groundwater quality and quantity. The existing cemetery would already be contributing to the impacts on groundwater and the small extension is not expected to have a significant additional impact.	Very Low	Recommendations as per the construction phase.
AIR QUALITY				
1.3.5	Increase in dust fallout. Increase in the concentration of suspended particulates, specifically fine, inhalable particulates.	The dust levels in the area are expected to be low as the site is only near a tarred road and there are no other activities in the area. The site is located near the existing Kathu cemetery thus, the activities in the area are not changing. The increase in the number of construction vehicles and machinery are unlikely to result in noticeable increases in dust emissions.	Very Low	Recommendations as per the construction phase.
CLIMATE AND GREENHOUSE GAS EMISSIONS				
1.3.6	Contribution to climate change due to greenhouse gas emissions.	Minimal vehicles and machinery are expected to be used for the construction phase as only a fence and an access road will be constructed. The increase in the number of construction vehicles and machinery are unlikely to result in noticeable increases in greenhouse gas emissions	Very Low	Recommendations as per the construction phase.

BIOLOGICAL NATURAL ENVIRONMENT				
PLANT LIFE				
1.3.7	Loss of protected species or species of conservation importance.	The adjacent Kathu Cemetery has already slightly impacted on the prevailing ecology. However, there is a high possibility of retaining protected trees on site. Provided the recommended mitigation measures for the construction phase are implemented, it is not expected that there will be significant changes to the plant life.	Low	Recommendations as per the construction phase.
ANIMAL LIFE				
1.3.8	Disturbance to animal life	Grazing can still occur in the surrounding area where there is similar habitat. Some animals can still use the habitat e.g. birds as they will not be restricted by the fencing. Provided the recommended mitigation measures for the construction phase are implemented, it is not expected that there will be significant changes to the plant life.	Low	Recommendations as per the construction phase.
SENSITIVE LANDSCAPES				
1.3.9	Disturbance to the Protected Kathu Woodland.	The adjacent Kathu Cemetery has already slightly impacted on the prevailing ecology. However, there is a high possibility of retaining protected trees on site. Provided the recommended mitigation measures for the construction phase are implemented, it is not expected that there will be significant changes to the sensitive landscape.	Low	Recommendations as per the construction phase.
SOCIAL AND ECONOMIC ENVIRONMENT				
SOCIO-ECONOMICS				
1.3.10	Job opportunities	Minimal job opportunities will be created for the construction phase of the cemetery expansion. A low impact is expected in terms of job opportunities with the implementation of the recommendations provided in the construction phase being implemented.	Low	Recommendations as per the construction phase.
TRAFFIC				
1.3.11	Increase traffic during construction	Increased vehicle movement during the construction of the cemetery fence and access road. The project will result in a very limited and short lived increase in the total number of vehicles in the area.	Low	Recommendations as per the construction phase.

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										Without Mitigation	Mitigation Confidence	With Mitigation	Mitigation Measure
2 OPERATIONAL PHASE													
2.1 DIRECT OPERATIONAL IMPACTS													
PHYSICAL NATURAL ENVIRONMENT													
TOPOGRAPHY													
2.1.1	Alteration of local relief	Levelling of areas where graves will be placed	1	3	4	2.7	1	1.83	0.8	1.47	Low	Low	• No mitigation is really possible other than the "no-go" option as the establishment of graves will change the local topography of the immediate area of where the grave is relocated. Soil can be replaced and vegetation that was removed can be replaced where possible to minimise the impact.
SOILS													
2.2.2	Loss of topsoil	Inappropriate removal and refilling of topsoil at graves.	3	3	4	3.3	1	2.17	0.6	1.30	Moderate	Low	• Care should be taken to replace topsoil to allow re-establishment of vegetation where possible.
2.2.3	Compaction of soils	Movement of vehicles and machinery at the site for grave establishment. Movement and parking of vehicles for people visiting graves.	2	2	2	2	2	2	0.60	1.20	Moderate	Low	• Ripping of soil in areas where soil has been compacted. • The impact of parked vehicles is expected to not cover a large area, as cars are likely to park near the entrance of the cemetery. • Vehicles should be restricted to travelling on the access roads.
2.2.4	Sidewall stability of soil where coffins are buried.	Loss of stability the deeper the coffin is buried. There is loss of sidewall stability around 1.5 meters, which is the same depth as the general grave depth, thus this impact is expected to be minimal.	2	2	2	2	1	1.5	0.4	0.60	Moderate	Very Low (Neg)	• Coffins should not be buried too deep, to prevent loss of stability of the sidewalls.
NOISE													
2.2.5	Noise generation from grave digging equipment.	Equipment used for digging of graves.	1	2	2	1.7	2	1.833	0.6	1.10	Moderate	Low	• Minimise movement of traffic along public roads as far as reasonably possible. • The contractor shall ensure that the workers do not create unnecessary noise such as hooting or shouting. • Maintain vehicles in good condition to prevent unnecessary noise outputs.
SURFACE WATER													
2.2.6	Surface Water Contamination	Maintenance activities including cleaning and use of herbicides for headstones.	2	2	2	2	1	1.5	0.4	0.6	Moderate	Very Low (Neg)	• Ensure that the use of cleaning agents are minimised. Herbicides are to be biodegradable.
GROUNDWATER													
2.2.7	Groundwater contamination	Contamination to the groundwater from coffins: material used for the coffin, natural human decomposition and impact to ammonia and nitrate levels in groundwater.	3	4	4	3.7	3	3.333	1	3.33	Low	Moderate	• No mitigation is really possible other than the "no-go" option as human natural decomposition cannot be stopped. To try decrease the impact, graves must not be dug too deep where the groundwater table level would be met, which is fairly deep (8m) in comparison to the general grave depth of approximately 1.6m.

No.	ENVIRON-MENTAL IMPACT	IMPACT SOURCE/DESCRIPTION	Intensity	Frequency	Duration	Severity	Extent	Consequence	Probability	Impact Significance			MITIGATION
										Without Mitigation	Mitigation Confidence	With Mitigation	Mitigation Measure
AIR QUALITY													
2.2.8	Increase in dust fallout. Increase in the concentration of suspended particulates, specifically fine, inhalable particulates.	Topsoil stripping and vegetation clearing for grave establishment. Travel on unsurfaced roads.	2	2	2	2	2	2	0.4	0.80	Moderate	Low	• Minimise vehicle movements on unsurfaced roads as far as reasonably possible. • Speed limits on unsealed roads will be limited to a maximum speed consistent with the minimisation of dust generation. Nominal speed limit of 40 km/h applies unless otherwise marked. • Complaints regarding dust to be registered in the complaints register and to be investigated and managed in accordance with the incident reporting procedures. • Rehabilitate disturbed area.
CLIMATE AND GREENHOUSE GAS EMISSIONS													
2.2.9	Contribution to climate change due to greenhouse gas emissions.	Vehicles and machinery used during the establishment of graves contributing to greenhouse gas emissions.	2	2	2	2	2	2	0.4	0.80	Moderate	Low	• Maintain machinery, vehicles and equipment in good condition to prevent unnecessary emissions. • Plan vehicle logistics to minimise the operational hours and distances travelled.
BIOLOGICAL NATURAL ENVIRONMENT													
PLANT LIFE													
2.2.10	Loss of protected species or species of conservation importance.	Damage and removal of protected trees within the protected Kathu Woodland.	5	2	4	3.7	2	2.833	1	2.83	High	Low	• Damage to and removal of protected species of vegetation is prohibited unless permits for removal from the Department of Agriculture, Fisheries and Forestry (DAFF) and the Department of Environment and Nature Conservation (DENC) are in place (licenses and permits are required where protected tree and plant species cannot be avoided and have to be removed, respectively). There are some species e.g. Acacia erioloba, Boscia albitrunca on site that would require a permit should they need to be moved. • Protected trees should be avoided and graves placed between protected trees allowing the retention of protected trees. Where disturbance cannot be avoided, the applicable permits need to be acquired prior to disturbance or removal of the plants/trees. • Trees that are removed should be replanted at a location discussed with DAFF/DENC. If trees cannot be replanted, new trees should be planted of the same species that were removed at a location discussed with DAFF/DENC.
ANIMAL LIFE													
2.2.11	Disturbance to animal life	Disturbance of habitats impacting animal movements and distribution, noise impacting animal movements and distribution, potential poaching. Impact to animal grazing.	2	2	4	2.7	1	1.833	1	1.83	Moderate	Low	• Any fauna directly threatened by the operational activities should be removed to a safe location by the SHEQ officer or other suitably qualified person. • Minimise footprint areas of disturbance • The collection, hunting or poaching of any animals at the site should be strictly forbidden. Personnel should not be allowed to wander off the demarcated construction site. • Strict penalties for poaching need to be imposed. • There needs to be environmental awareness training of staff.

No.	ENVIRON-MENTAL IMPACT	IMPACT SOURCE/DESCRIPTION	Intensity	Frequency	Duration	Severity	Extent	Consequence	Probability	Impact Significance			MITIGATION
										Without Mitigation	Mitigation Confidence	With Mitigation	Mitigation Measure
SENSITIVE LANDSCAPES													
2.2.12	Disturbance to the Protected Kathu Woodland.	Damage and removal of protected trees within the protected Kathu Woodland which the cemetery is located within.	5	2	4	3.7	2	2.833	1	2.83	High	Low	• Damage to and removal of protected species of vegetation is prohibited unless permits for removal from the Department of Agriculture, Fisheries and Forestry (DAFF) and the Department of Environment and Nature Conservation (DENC) are in place (licenses and permits are required where protected tree and plant species cannot be avoided and have to be removed, respectively). There are some species e.g. *Acacia erioloba* on site that would require a permit should they need to be moved. • Trees that are removed should be replanted at a location discussed with DAFF/DENC. If trees cannot be replanted, new trees should be planted of the same species that were removed at a location discussed with DAFF/DENC.
SOCIAL AND ECONOMIC ENVIRONMENT													
SOCIO-ECONOMICS													
2.2.13	Job opportunities	Minimal job opportunities will be created for the operational phase of the cemetery expansion, which will mainly include maintenance activities and grave digging.	1	1	4	2	1	1.5	1	1.50	Moderate	Moderate	• Maintain employment numbers.
2.2.14	Providing increased burial area.	Providing residents of the Kathu area with burial space as the existing cemetery is reaching full capacity.	2	4	5	3.7	4	3.833	1	3.83	High	High	• Ensure effective placement of graves to maximise the number of graves that can be placed in the cemetery.
VISUAL ASPECTS													
2.2.15	Sense of place	Establishing graves and erecting gravestones.	1	2	5	2.7	1	1.833	0.4	0.73	Low	Very Low (Neg)	• The existing cemetery is adjacent to the proposed extension, thus the sense of place is not expected to change. • Natural vegetation cover needs to be maintained where possible and vegetation removal must be minimised where possible.
TRAFFIC													
2.2.16	Increased traffic for visiting graves	Increased vehicle movement during the operational phase of the cemetery where graves are visited.	2	2	2	2	3	2.5	0.4	1.00	Moderate	Very Low (Neg)	• Appropriate speed limits for all vehicles must be strictly enforced to reduce the dust nuisance for the surrounding areas. Traffic impacts are not expected to be significant.

No.	ENVIRON-MENTAL IMPACT	IMPACT SOURCE/DESCRIPTION	Intensity	Frequency	Duration	Severity	Extent	Consequence	Probability	Impact Significance			MITIGATION
										Without Mitigation	Mitigation Confidence	With Mitigation	Mitigation Measure
CULTURAL, HERITAGE AND PALAEONTOLOGICAL RESOURCES													
2.2. 17	Disturbance of archaeological sites and other sites of heritage importance	Movement of people and vehicles on site and digging up of soil for grave establishment may impact sites of heritage/archaeological importance. The proposed operational activities might unearth artefacts of cultural or historic value.	5	4	5	4.7	3	3.833	0.8	3.07	High	Moderate	• The subterranean presence of archaeological and/or historical sites features or artefacts are always a distinct possibility. Care should therefore be taken during any activities in case any of these are accidentally discovered. • It is recommended that a set of test excavation be done to determine presence and extent of an archaeological deposit. • If a deposit is identified a controlled sampling of the material found should be done. • This work must be done in such a way as to augment the current research questions and field work such as the excavations at the Kathu Townlands Site and Kathu Pan. • These test excavations and sampling must be done after a permit has been granted under Section 35 of the NHRA (Act 25 of 1999) to a qualified and experienced Stone Age archaeologist. • An archaeologist suitably qualified in Stone Age fieldwork and research must be appointed to undertake an Archaeological Watching Brief for the Construction Phase of the project. The appointed archaeologist will be responsible for the following: ○ Provide training to the project Environmental Control Office (ECO) in Stone Age archaeology and the identification of Stone Age artefacts and sites. The ECO will be responsible for daily on-site monitoring during the construction phase with the appointed archaeologist visiting the site every two weeks, or at a lower frequency as recommended by the archaeologist. ○ On-site assessment of any Stone Age material exposed during construction and the provision of recommendations for the way in which the exposed material must be mitigated. ○ Compile and submit an archaeological monitoring report at the end of the monitoring process. ○ Should any Stone Age material or any archaeological material be identified, all construction work in that area must immediately stop and the ECO or archaeologist (if he is already present on site) must demarcate a construction free area around the discovery. If the ECO made the discovery, the archaeologist must be contacted immediately to visit the construction site to assess the exposed material. After assessing the exposed material the archaeologist would provide recommendations for the exposed material which may range from destruction without mitigation (if the exposed material is found to be of little significance) to archaeological mitigation (if the exposed material is found to be significant). The Stone Age or archaeological material will not be disturbed or relocated until the necessary permits have been obtained where applicable.

No.	ENVIRON-MENTAL IMPACT	IMPACT SOURCE/DESCRIPTION	Intensity	Frequency	Duration	Severity	Extent	Consequence	Probability	Impact Significance			MITIGATION
										Without Mitigation	Mitigation Confidence	With Mitigation	Mitigation Measure
2.2.18	Disturbance of palaeontological resources	Excavation activities for the establishment of graves may unearth palaeontological resources.	5	4	5	4.7	3	3.833	0.6	2 30	Moderate	Moderate	• The subterranean presence of palaeontological resources is always a distinct possibility. Care should therefore be taken during any activities in case any of these are accidentally discovered. • The ECO for this project must be made aware of the fact that the windblown sand of the Gordonia Formation might contain fossils of root casts, burrows and rare vertebrate remains. Recording of these fossils will contribute significantly to our understanding of the palaeo-environments that prevailed in the area. • If significant fossil finds (e.g. vertebrate remains, bones, burrows, fresh water shells) are recorded during excavations for poles for the fence a qualified palaeontologist must be employed to apply for a collection permit to collect the fossils according the SAHRA specifications.

No.	ENVIRONMENTAL IMPACT	IMPACT SOURCE/DESCRIPTION	Intensity	Frequency	Duration	Severity	Extent	Consequence	Probability	Impact Significance			MITIGATION
										Without Mitigation	Mitigation Confidence	With Mitigation	Mitigation Measure
2 OPERATIONAL PHASE													
2.2 INDIRECT OPERATIONAL IMPACTS													
BIOLOGICAL NATURAL ENVIRONMENT													
PLANT LIFE													
2.2.1	Alien and invasive Plants	The disturbance of the soil surface could provide opportunity for alien and invasive plant species to establish and proliferate.	3	2	3	2.7	2	2.3	0.6	1.40	Moderate	Low	• In terms of the amendments to the regulations under the Conservation of Agricultural Resources Act, 1983 and Section 28 of the National Environmental Management Act, 1998, land users are legally responsible for the control of invasive alien plants on the properties and it is therefore recommended that declared weed and invader species be removed from the subject property areas where the operations take place. • This action must be followed up regularly to prevent regrowth or seedling growth. • It must be continuously monitored.
SENSITIVE LANDSCAPES													
2.2.2	Ecosystem Changes	Establishing graves could have ecosystem changes with impacts to groundwater impacts, habitats etc.	2	2	3	2.3	2	2.2	0.6	1.30	Low	Low	• Minimise footprint areas of disturbance. • Minimise noise disturbance as described in 'direct operational impacts'. • Minimise impacts to water resources as described in the 'direct operational impacts'. • Mitigation for the change to habitat is not really possible other than the "no-go" option. The surrounding area is similar to the area being used for the cemetery, thus this impact is not expected to be significant, as surrounding areas can provide the same use. • Natural vegetation cover needs to be restored at impacted areas, where possible.

No.	ENVIRONMENTAL IMPACT	IMPACT SOURCE/DESCRIPTION	Impact Significance Incremental (additional) Impacts	Recommendations
2 OPERATIONAL PHASE				
2.3 CUMULATIVE OPERATION IMPACTS				
PHYSICAL NATURAL ENVIRONMENT				
NOISE				
2.3.1	Movement of vehicles	The proposed project will generate minimal noise through the movement of vehicles and machinery during the operational phase. A very limited, short term increase in the level of noise will be caused by the proposed project. There will no be any new impacts, only the time extension of existing impacts.	Very Low	Recommendations as per the construction phase.
SURFACE WATER				
2.3.2	Disturbance to watercourses	Disturbance to the drainage lines through construction activities. It is not expected that the project will impact on drainage lines significantly, as the cemetery will be outside of the drainage lines and activities are expected to be restricted to the proposed project area.	Low	Recommendations as per the construction phase.
2.3.3	Contamination of surface water run-off	The inappropriate management and handling of fuel, oil and other potentially hazardous chemicals and substances during the construction period could result in potentially negative cumulative impacts on surface water quality. Provided that the correct management of the site is implemented, it is not expected that operational activities should contribute significantly to the decrease in surface water quality and quantity.	Very Low	Recommendations as per the construction phase.
GROUNDWATER				
2.3.4	Groundwater contamination	The inappropriate management and handling of fuel, oil and other potentially hazardous chemicals and substances during the construction period could result in potentially negative impacts on ground water quality. Provided that the correct management of the site is implemented, it is not expected that operational activities (grave digging, site maintenance) should contribute significantly to the decrease in groundwater quality and quantity. There will no be any new impacts, only the time extension of existing impacts.	Very Low	Recommendations as per the construction phase.

AIR QUALITY				
2.3.5	Increase in dust fallout. Increase in the concentration of suspended particulates, specifically fine, inhalable particulates.	The dust levels in the area are expected to be low as the site is only near a tarred road and there are no other activities in the area. The site is located near the existing Kathu cemetery thus, the activities in the area are not changing. The increase in the number of construction vehicles and machinery are unlikely to result in noticeable increases in dust emissions.	Very Low	Recommendations as per the construction phase.
CLIMATE AND GREENHOUSE GAS EMISSIONS				
2.3.6	Contribution to climate change due to greenhouse gas emissions.	Minimal vehicles and machinery are expected to be used for the operational phase as only graves need to be dug. There will be vehicles from people visiting graves, however this is currently happening at the existing cemetery. There may be slight increases with the expansion. The increase in the number of vehicles and machinery are unlikely to result in noticeable increases in greenhouse gas emissions. There will no be any new impacts, only the time extension of existing impacts.	Very Low	Recommendations as per the construction phase.
BIOLOGICAL NATURAL ENVIRONMENT				
PLANT LIFE				
2.3.7	Loss of protected species or species of conservation importance.	The adjacent Kathu Cemetery has already slightly impacted on the prevailing ecology. However, there is a high possibility of retaining protected trees on site. Provided the recommended mitigation measures for the construction phase are implemented, it is not expected that there will be significant changes to the plant life.	Low	Recommendations as per the construction phase.
ANIMAL LIFE				
2.3.8	Disturbance to animal life	Grazing can still occur in the surrounding area where there is similar habitat. Some animals can still use the habitat e.g. birds as they will not be restricted by the fencing.	Low	Recommendations as per the construction phase.
SENSITIVE LANDSCAPES				
2.3.9	Disturbance to the Protected Kathu Woodland.	The adjacent Kathu Cemetery has already slightly impacted on the prevailing ecology. However, there is a high possibility of retaining protected trees on site. Provided the recommended mitigation measures for the construction phase are implemented, it is not expected that there will be significant changes to the sensitive landscape.	Very Low	Recommendations as per the construction phase.
SOCIAL AND ECONOMIC ENVIRONMENT				
SOCIO-ECONOMICS				
2.3.10	Job opportunities	There will be retention of existing job opportunities.	Very Low positive	Recommendations as per the construction phase.
TRAFFIC				
2.3.11	Increase traffic during construction	Increased vehicle movement during the operational of the cemetery fence and access road. The project will result in a very limited increase in the total number of vehicles in the area. There will no be any new impacts, only the time extension of existing impacts.	Very Low	Recommendations as per the construction phase.

No.	ENVIRONMENTAL IMPACT	IMPACT SOURCE/DESCRIPTION	Impact	MITIGATION
			Without Mitigation	Mitigation Measure
3 DECOMMISSIONING AND CLOSURE PHASE				
3.1 DIRECT DECOMMISSIONING AND CLOSURE IMPACTS				
The Kathu cemetery expansion is expected to remain on site indefinitely. Should this change in future, then the direct impact of removing the graves and rehabilitating the site will need to be assessed at the appropriate time. Once the cemetery reaches full capacity, any infrastructure present, other than graves and headstones and fences will be removed from the site				
3.2 INDIRECT DECOMMISSIONING AND CLOSURE IMPACTS				
The Kathu cemetery expansion is expected to remain on site indefinitely. Should this change in future, then the direct impact of removing the graves and rehabilitating the site will need to be assessed at the appropriate time. Once the cemetery reaches full capacity, any infrastructure present, other than graves and headstones and fences will be removed from the site.				
3.3 CUMULATIVE DECOMMISSIONING AND CLOSURE IMPACTS				
The Kathu cemetery expansion is expected to remain on site indefinitely. Should this change in future, then the direct impact of removing the graves and rehabilitating the site will need to be assessed at the appropriate time. Once the cemetery reaches full capacity, any infrastructure present, other than graves and headstones and fences will be removed from the site				