PROJECT IMPACT ASSESSMENT, SIGNIFICANCE AND MITIGATION MEASURES SUMMARY

The following impact rating approach used by EnviroAfrica CC is a basic exponential rating system to assess actual and potential negative and positive environmental impacts.

Environmental activities or aspects are identified, based on:

- the phases of the project,
- the nature (or description) of the actual and potential impacts of the activities.

For every project activity or aspect, various environmental impacts are listed. Every negative impact is allocated a -value as per each of the following criteria:

- Probability (Likelihood)
- Extent
- Duration (Frequency)
- Consequence (Receiving Environment)
- Magnitude (Intensity/severity)

Every positive impact is allocated a +value as per each of the following criteria:

- Probability (Likelihood)
- Extent
- Duration (Frequency)
- Magnitude (Intensity/severity)

Once a value is allocated for each of the criterion, the scores are averaged to determine the final impact rating see Table 1 below.

EnviroAfrica then further assesses environmental significance, based on the nature of the impact, as per the score and colour key which forms part of Table 1 below. This results in impacts having either a low (indicated in green), medium (indicated in yellow) or high (indicated in orange and red) negative significance, and a low (light blue), medium (blue) or a high (dark blue) positive significance

Note: i. As a baseline, impact rating values/scores are allocated taking the **worst case** scenario into account i.e. with no mitigation. The baseline rating is compared with those after mitigation has been taken into account *i.e.*, the post-mitigation rating. Post mitigation rating is used for the actual impact assessment.

IMPACT ASSESSMENT

SIGNIFICANCE CRITERIA	Very High	High	Medium	Low	Negligible (very low)
Value	**16**	**8**	**4**	**2**	**1**
Probability (likelihood) **(P)**		Definite. Impact will definitely occur (impact will occur regardless of any prevention measures)	Highly probable. Very likely for impact to occur.	Probable. Impact may likely occur.	Improbable. Low likelihood/unlikely for impact to occur.
Extent (E)	Impact potentially reaches beyond national boundaries	Impact has definite provincial/potential national consequences	Impact confined to regional area/ town	Impact confined to local region and impact on neighbouring properties	Impact confined to project property / site
Duration (D)	Permanent The impact is expected to have a permanent impact, with very little to no rehabilitation possible	Long-Term The impact is expected to last for a long time after construction with rehabilitation expected to be 15-50 years. Impact is reversible but only with long-term mitigation	Medium-term The impact is expected to last for some time after construction with rehabilitation expected to be 5 - 15 years. Impact is reversible but only with on-going mitigation	Short-term The impact is expected to last for a relatively short time with rehabilitation expected to be 2-5 years. The impact is reversible through natural process and/or some mitigation.	Very short/ temporary The impact is expected to be temporary and last for a very short time with rehabilitation expected to be less than 2 years. The impact is easily reversible through natural process and/or some mitigation.
Magnitude (Intensity/ Severity) **(M)**	It is expected that the activity will have a very severe to permanent impact on the surrounding environment. Functioning irreversibly impaired. Rehabilitation often impossible or unfeasible	It is expected that the activity will have a severe impact on the surrounding environment. Functioning may be severely impaired and may be temporarily cease. Rehabilitation will be needed to restore system integrity	It is expected that the activity will have an impact on the surrounding environment, but it will maintain its function, even if moderately modified (overall integrity not compromised). Rehabilitation easily achieved	It is expected that the activity will have a perceptible impact on the surrounding environment, but it will maintain its function, even if slightly modified (overall integrity not compromised). Rehabilitation easily achieved	It is expected that the impact will have little or no effect on the integrity of the surrounding environment
Receiving environment (Consequence): **(RE)**	Very sensitive, pristine area – protected site or species permanently or seasonally present	Unused area containing only indigenous fauna / flora species	Unused area containing indigenous and alien fauna / flora species	Semi-disturbed area already rehabilitated / recovered from prior impact, or with moderate alien vegetation	Disturbed area/ transformed/ heavy alien vegetation

ENVIRONMENTAL RATING SIGNIFICANCE KEY:

Negative Impacts

SIGNIFICANCE	RATING	Final rating score / value range
Very Significant	Very High	-11 to -16
Significant	High	-7 to <-11
Increasing Significance	Medium	-4 to <-7
Insignificant	Low	-2 to <-4
	Very Low	-1 to <-2

Positive Impacts

SIGNIFICANCE	RATING	Final rating score / value range
Significant	High	10 to 16
Increasing Significance	Medium	4 to <10
Insignificant	Low	1 to <4

Environmental Significance Rating Methodology (rating criteria and significance key)

Nature of Impact			Impact Assessment Ranking and Proposed Mitigation		
No.	**Aspect**	**Impact**	**Environmental Significance (without Mitigation)**	**Proposed Mitigation (i.e. Proposed mitigation to reverse/ avoid, manage or mitigate identified impacts associated with construction, operation, and decommissioning/ closure phases)**	**Environmental Significance (After Mitigation)**
CONSTRUCTION PHASE					
1	Impact on Cultural, Archaeological, and Heritage Resources	Loss and/or damage to potential archaeological and historical sites within the construction footprint	Low	- Should any archaeological remains (including but not limited to fossil bones and fossil shells, coins, indigenous and/or colonial ceramics, any articles of value or antiquity, stone artefacts and bone remains, structures and other built features, rock art and rock engravings) are discovered during construction they must immediately be reported to the South African Heritage Resources Agency ("SAHRA") and must not be disturbed further until the necessary approval has been obtained from SAHRA. - Should any human remains/burial or archaeological material be disturbed, exposed or uncovered during construction, these should immediately be reported to the SAHRA (021 462 4502). The ECO and ER are also to be informed. An archaeologist will be required to remove the remains at the expense of the applicant - Note that the Contractor must not, without a permit issued by the responsible heritage resource authority; destroy, damage, excavate, alter, deface or otherwise disturb any archaeological site or archaeological material. The latter is a criminal offence under the Heritage Resources Act. - The Fossil Find Procedure must be implemented, should any fossil material be discovered during construction, this must be safeguarded (preferably *in situ*) and the Environmental Control Officer (ECO) should alert the SAHRA so that appropriate mitigation (*e. g.* recording, sampling, or collection) can be taken by a professional palaeontologist.	Low
2	Impact on Palaeontological Resources	Loss and/or damage to potential fossils within the construction footprint	Low	Significant impacts on fossil heritage resources are not expected. The Fossil Find Procedure must be implemented. Should any fossil material be discovered during construction, this must be safeguarded	Low

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				(preferably *in situ*) and the Environmental Control Officer (ECO) should alert the SAHRA so that appropriate mitigation (*e. g.* recording, sampling, or collection) can be taken by a professional palaeontologist at the expense of the applicant.	
3	Botanical	Loss of Kalahari Karroid Shrubland	Low (Negative)	-Permits must be obtained before any disturbance to the on-site plants that are protected by the Northern Cape Nature Conservation Act -A search and rescue programme must be embarked on for the on-site plant species that can be transplanted that are protected in terms of the Northern Cape Nature Conservation Act. The rescued plants should be re-planted on another site determined in consultation with the DAERL: Research and Development Support.	Medium (Negative)
4	Groundwater	N/A	N/A	N/A	N/A
5	Freshwater Resources	N/A			
6	Socio-economic	Alleviation of looming shortage of burial spaces where the community can bury their loved ones	High (Positive)		
7	Dust	Dust may be generated during the construction of the proposed development.	Medium (Negative)	The Contractor must take all reasonable measures to minimize the generation of dust as a result of construction activities resulting from along-construction-route activities (but must also take into account possible water constrictions of the area). - The onsite construction site agent must take into account prevailing wind strength and wind direction and must have	Low (Negative)

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				preventative measures on standby to minimize dust pollution that may cause nuisance to people and property. - The liberation of dust into the surrounding environment shall be effectively controlled by the use of, *inter alia*, water spraying and/or other dust-allaying agents. The speed of construction vehicles must be strictly controlled to avoid dangerous conditions and excessive dust.	
8	Visual	Visual impact of construction activities on site	Low (Negative)	- Construction activities should limited to within the construction footprint - The contractor must not operate any machinery outside the demarcated area.	Low (Negative)
9	Traffic	Increase in construction vehicles and machinery	Medium (Negative)	Cognisance of traffic and other road users. Allowance for road users to bypass construction areas, without creating new routes into natural vegetation	Medium (Negative)
10	Noise	Noise will be generated during the construction phase.	Low (Negative)	Any noise generated by construction activities will be a temporary impact however, the following mitigation measures will be implemented: - A complaint register to be maintained on-site. Any complaints received must be responded to and rectified accordingly. The ECO must be notified of any complaints; - All construction vehicles must be fitted with standard silencers. All silencers must be maintained. All machinery used on site must have suppressors. - Working hours must be strictly limited to to standard daylight working hours (08h00-17h00).	Low (Negative)

OPERATIONAL PHASE					
11	Freshwater Resources	N/A	N/A	N/A	N/A
12	Visual	Visual impact of the cemetery expansion	Low (Negative)	Palisade fence similar to the palisade fence currently obscuring the current extent of the Jupiter cemetery should be constructed around the proposed site.	Low (Negative)
13	Groundwater	Stormwater ponding and subsequent infiltration leading to localised perched water tables at the bedrock-soil interface	Low (Negative)	-A system of graves with heaped stones must be used as is the case with the existing Jupiter Cemetery in response to the shallow bedrock -An effective stormwater management system must be put in place and maintained to help prevent stormwater ponding and infiltration on the proposed site.	Low (Negative)
14	Socio-economic	Creation of long-term employment opportunities.	Low (Positive)	No mitigation necessary	