

In terms of Regulation 22(2)(i) of GN R.543 of the NEMA Environmental Impact Assessment Regulations, 2010, the impact assessment for the proposed pipeline is as follows:

Construction phase:

<b>Potential impacts on geographical and physical aspects:</b>	
<b>Nature of impact:</b>	<b>Potential impact on freshwater ecosystems (Molopo River)</b>
<b>Extent and duration of impact:</b>	Local, during construction phase (short-term)
<b>Probability of occurrence:</b>	Probable
<b>Degree to which the impact can be reversed:</b>	Likely
<b>Degree to which the impact may cause irreplaceable loss of resources:</b>	Medium negative
<b>Cumulative impact prior to mitigation:</b>	Medium negative
<b>Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Medium negative
<b>Degree to which the impact can be mitigated:</b>	High
<b>Proposed mitigation:</b>	<ul style="list-style-type: none"> <li>Pipeline to be buried at least 1.5m deep</li> <li>Construction to take place in dry season Backfilling of the trench should restore pre-construction elevations.</li> <li>An environmental management programme should be compiled, which includes detailed Method Statements that will ensure that the above mitigation measures can be effectively implemented and the identified impacts can be avoided or minimised as far as possible.</li> <li>An Environmental Control Officer should be appointed to the project, to ensure that the objectives of the required mitigation measures are met during project implementation.</li> </ul>
<b>Cumulative impact post mitigation:</b>	Low - negative
<b>Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Low - negative

<b>Potential impact on biological aspects:</b>	
<b>Nature of impact:</b>	<b>Loss of vegetation and associated habitat</b>
<b>Extent and duration of impact:</b>	Local, temporary
<b>Probability of occurrence:</b>	Probable
<b>Degree to which the impact can be reversed:</b>	Likely
<b>Degree to which the impact may cause irreplaceable loss of resources:</b>	Unlikely
<b>Cumulative impact prior to mitigation:</b>	Medium negative
<b>Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Medium negative
<b>Degree to which the impact can be mitigated:</b>	Low
<b>Proposed mitigation:</b>	<ul style="list-style-type: none"> <li>Micro-placement adjustment of the final route must be done in consultation with a suitably qualified ECO in order to establish the best route to minimise the impact on as many of the protected tree species as possible.</li> <li>Permits must be obtained for the removal of any protected trees which cannot be avoided.</li> <li>Any significant plant species that may be encountered must</li> </ul>

	<p>be identified and located (e.g. <i>Acacia erioloba</i>) and all efforts made to avoid damage to such species.</p> <ul style="list-style-type: none"> <li>Only existing access roads should be used for access to the terrain.</li> <li>Access roads must be clearly demarcated and access must be tightly controlled (deviations may not be allowed).</li> <li>Indiscriminate clearing of areas must be avoided (all remaining areas to remain as natural as possible).</li> <li>All topsoil (at all excavation sites) must be removed and stored separately for re-use for rehabilitation purposes. The topsoil and vegetation should be replaced over the disturbed soil to provide a source of seed and a seed bed to encourage re-growth of the species removed during construction.</li> <li>Once the construction is completed all further movement must be confined to the access tracks to allow the vegetation to re-establish over the excavated areas.</li> <li>Rehabilitation must include sand stabilisation methods to protect the open sandy areas against wind erosion.</li> </ul>
Cumulative impact post mitigation:	Low negative
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low negative

<b>Potential impact on biological aspects:</b>	
Nature of impact:	<b>Impact on threatened vegetation</b>
Extent and duration of impact:	Local, temporary
Probability of occurrence:	Highly unlikely
Degree to which the impact can be reversed:	Unlikely
Degree to which the impact may cause irreplaceable loss of resources:	Unlikely
Cumulative impact prior to mitigation:	Low negative
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low negative
Degree to which the impact can be mitigated:	Low
Proposed mitigation:	<ul style="list-style-type: none"> <li>None proposed as the impacts is highly unlikely</li> </ul>
Cumulative impact post mitigation:	Low negative
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low negative

<b>Potential impact on biological aspects:</b>	
Nature of impact:	<b>Impact on protected vegetation</b>
Extent and duration of impact:	Local, during construction
Probability of occurrence:	Probable
Degree to which the impact can be reversed:	Unlikely
Degree to which the impact may cause irreplaceable loss of resources:	Low
Cumulative impact prior to mitigation:	Low negative
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low negative
Degree to which the impact can be mitigated:	Medium
Proposed mitigation:	<ul style="list-style-type: none"> <li>Micro-placement adjustment of the final route must be done in consultation with a suitably qualified ECO in order to establish the best route to minimise the impact on as many of the protected tree species as possible.</li> </ul>

	<ul style="list-style-type: none"> <li>Permits must be obtained for the removal of any protected trees which cannot be avoided.</li> </ul>
Cumulative impact post mitigation:	Medium negative
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium negative

<b>Potential impacts on socio-economic aspects:</b>	
Nature of impact:	<b>Temporary jobs will be created in the construction industry during the construction phase.</b>
Extent and duration of impact:	Local. During the construction phase of the activity
Probability of occurrence:	Definite
Degree to which the impact can be reversed:	NA. This is a positive impact
Degree to which the impact may cause irreplaceable loss of resources:	NA
Cumulative impact prior to mitigation:	Low - positive
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low - positive
Degree to which the impact can be mitigated:	Medium
Proposed mitigation:	No mitigation measures are required. Temporary jobs will be created during the construction phase
Cumulative impact post mitigation:	Low - positive
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low - positive

<b>Potential impacts on cultural-historical aspects:</b>	
Nature of impact:	<b>The loss of Archaeological heritage during construction</b>
Extent and duration of impact:	Local, during construction phase
Probability of occurrence:	Unlikely,
Degree to which the impact can be reversed:	N/A
Degree to which the impact may cause irreplaceable loss of resources:	Unlikely
Cumulative impact prior to mitigation:	Very low - Negative
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Very low - Negative
Degree to which the impact can be mitigated:	Limited
Proposed mitigation:	<ul style="list-style-type: none"> <li>Should any such remains be uncovered, or exposed during excavations, these must immediately be reported to Dr David Morris at the McGregor Museum in Kimberly (082 222 4777 or 053 839 2706), and the area sealed off. Burials or ostrich eggshell caches must not be removed until inspected by the archaeologist.</li> </ul>
Cumulative impact post mitigation:	Negligible
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Negligible

<b>Potential noise impacts:</b>	
Nature of impact:	<b>Noise impact from machinery and plant during construction</b>
Extent and duration of impact:	Local, Duration of construction phase
Probability of occurrence:	Probable
Degree to which the impact can be reversed:	Medium
Degree to which the impact may cause irreplaceable loss of resources:	Negligible

Cumulative impact prior to mitigation:	Negligible
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Negligible
Degree to which the impact can be mitigated:	Probable
Proposed mitigation:	Noise mitigation measures are dealt with in the EMP.
Cumulative impact post mitigation:	Negligible
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Negligible

<b>Potential visual impacts:</b>	
Nature of impact:	Unightly views due to construction site.
Extent and duration of impact:	Local, during duration of construction
Probability of occurrence:	Probable
Degree to which the impact can be reversed:	Possible
Degree to which the impact may cause irreplaceable loss of resources:	N/A
Cumulative impact prior to mitigation:	Low - negative
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low - negative
Degree to which the impact can be mitigated:	Probable
Proposed mitigation:	<ul style="list-style-type: none"> <li>Due to the fact the pipeline will be buried, it is expected to be low negative. The trenches will be backfilled, and where required, rehabilitated and brush-packed.</li> </ul>
Cumulative impact post mitigation:	Very low - negative
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Very low - negative

## Operational phase:

Potential impacts on the geographical and physical aspects:	
Nature of impact:	The operational phase of the pipeline is expected to pose little to no direct threat to freshwater ecosystems, other than in the event of malfunction, when it is possible that sections of the pipeline might be exposed for repair or replacement. In this event, the impacts are likely to be the same as in the construction phase.
Extent and duration of impact:	
Probability of occurrence:	
Degree to which the impact can be reversed:	
Degree to which the impact may cause irreplaceable loss of resources:	
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	
Degree to which the impact can be mitigated:	
Proposed mitigation:	
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	

Potential impact biological aspects:	
Nature of impact:	The operational phase of the pipeline is expected to pose little to no direct threat to any biodiversity aspects (vegetation), other than in the event of malfunction, when it is possible that sections of the pipeline might be exposed for repair or replacement. In this event, the impacts are likely to be the same as in the construction phase.
Extent and duration of impact:	
Probability of occurrence:	
Degree to which the impact can be reversed:	
Degree to which the impact may cause irreplaceable loss of resources:	
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	
Degree to which the impact can be mitigated:	
Proposed mitigation:	
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	

Potential impacts on the socio-economic aspects:	
Nature of impact:	The proposed activity will provide much needed water to the Middelputs area of Botswana, ensuring sustainable live-stock farming in the area (main source of income).
Extent and duration of impact:	Local, Permanent
Probability of occurrence:	Definite
Degree to which the impact can be reversed:	NA
Degree to which the impact may cause irreplaceable loss of resources:	NA, the impact is a positive impact

Cumulative impact prior to mitigation:	NA
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	NA
Degree to which the impact can be mitigated:	NA, the impact is a positive impact
Proposed mitigation:	No mitigation measures are required
Cumulative impact post mitigation:	Medium - Positive
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium - Positive

<b>Potential impacts on the cultural-historical aspects:</b>	
Nature of impact:	No cultural or historic impacts are expected during the operational phase of this activity.
Extent and duration of impact:	
Probability of occurrence:	
Degree to which the impact can be reversed:	
Degree to which the impact may cause irreplaceable loss of resources:	
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	
Degree to which the impact can be mitigated:	
Proposed mitigation:	
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	

<b>Potential noise impacts:</b>	
Nature of impact:	The activity is for an underground pipeline. No noise impacts are expected during the operational phase for this activity.
Extent and duration of impact:	
Probability of occurrence:	
Degree to which the impact can be reversed:	
Degree to which the impact may cause irreplaceable loss of resources:	
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	
Degree to which the impact can be mitigated:	
Proposed mitigation:	
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	

<b>Potential visual impacts:</b>	
Nature of impact:	The activity is for an underground pipeline. No visual impacts are expected during the operational phase for this activity.  Disturbed areas are to be rehabilitated after construction.
Extent and duration of impact:	
Probability of occurrence:	
Degree to which the impact can be reversed:	

Degree to which the impact may cause irreplaceable loss of resources:	
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	
Degree to which the impact can be mitigated:	
Proposed mitigation:	
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	

#### Decommissioning:

The project as proposed does not require 'decommissioning' or 'closure', as such the potential impacts thereof is considered irrelevant.