

## Appendix F: Impact Assessment for the proposed Electrical Grid Connection Infrastructure to support the Mogobe Battery Energy Storage System (BESS).

This appendix was prepared taking into consideration the Specialist Assessment reports contained in Appendix D1 to D7. Please note that many of the specialist studies undertaken, constitute compliance statements due to the generally low sensitivity of the receiving environment as verified by the specialists. The protocols don't require a formal tabulated assessment of impacts where compliance statements are required.

### 1. Impact Summary

**Table 1:** Summary of Status and Significance of Impacts Associated with the Mogobe EGI and mitigation measures.<sup>1</sup>

Nature of Impact	Status	Significance after Mitigation	Mitigation Measures.
Impact on Plant Species of Conservation Concern.	Negative	Low	<p>Construction vehicles and machinery must not encroach into identified 'no-go' areas or areas outside the project footprint.</p> <p>Topsoil (20 cm, where possible) must be collected and stored in an area of low (preferable) and medium sensitivity and used to rehabilitate impacted areas that are no longer required during the operational phase (e.g. laydown areas).</p> <p>Only indigenous species must be used for rehabilitation.</p> <p>Where possible, lay down areas must be located within previously disturbed sites.</p> <p>Laydown areas that are not required once construction has ceased, must be rehabilitated back to their natural state using indigenous vegetation.</p> <p>Employees must be prohibited from making open fires during the construction phase to prevent uncontrolled run-away fires.</p> <p>Employees must be prohibited from collecting plants. It is recommended that spot checks of pockets and bags are done on a regular basis to ensure that no unlawful harvesting of plant species is occurring.</p>

<sup>1</sup> This must be read in conjunction with the the Environmental Impact Management Outcomes and Actions outlined in the EMPR's in Appendices G1 and G2.

Nature of Impact	Status	Significance after Mitigation	Mitigation Measures.	
			<p>The site must be checked regularly for the presence of alien invasive species. When alien invasive species are found, immediate action must be taken to remove them.</p> <p>An Alien Invasive Management Plan for the site must be created.</p> <p>The ECO must create a list with accompanying photographs of possible alien invasive species that could occur on site prior to construction. This photo guide must be used to determine if any alien invasive species are present.</p> <p>Although there are no SCC present within the project area, there are protected species that will require a permits for their removal. An ecological walkthrough of the project area was completed for the area at the same time that the field survey was completed. The Ecological Walkthrough report identified two species (Boophone disticha and Vachellia erioloba) that will require permit for their removal and/or destruction. Comment on the number of individuals that will be impacted has been provided in the report.</p> <p>Boophone disticha is a species that can be successfully transplanted. This species should be moved to areas within the property that will not be affected by project infrastructure.</p> <p>Where feasible, existing access roads must be used and upgraded</p>	
Impact on Animal Species of Conservation Concern	Negative	Low	<p>The development must consolidate road networks to minimise the loss of faunal habitat.</p> <p>A walk through to determine the unlikely, but potential occurrence of secretary bird nests must take place prior to commencement of construction. Any nests found may not be disturbed by construction activities.</p> <p>All construction and construction related activities (including parking of vehicles and machinery) must remain within the approved project footprint.</p> <p>No construction and construction related activities are permitted within</p>	

Nature of Impact	Status	Significance after Mitigation	Mitigation Measures.	
			<p>identified 'no-go' areas and a fine system must be put in place for transgressions by the developer and included in contractual agreements with all staff and contractors.</p> <p>Microhabitats (e.g. rock stacks and logs) in the clearing footprint must be relocated to the same habitat immediately adjacent to the removal site. E.g. Rock stacks should be restacked.</p> <p>Rehabilitation efforts must provide habitat for faunal species by placing logs and rocks at strategic sites to provide shelter for small mammals and reptiles.</p> <p>A clause must be included in contracts for ALL construction personnel working on site stating that: "no wild animals will be hunted, killed, poisoned or captured. No wild animals will be imported into, exported from or transported in or through the province. The ECO should appoint a member of staff to walk ahead of construction machinery directly prior to vegetation clearance. Should any faunal species be identified during the walk through, these should be allowed to move out of harm's way prior to vegetation clearance.</p> <p>Dust suppression measures must be implemented in the dry and/or windy months.</p> <p>All machinery, vehicles and earth moving equipment must be maintained and the noise these create must meet industry minimum standards. e.g. the sound generated by a machine must be below a certain decibel as prescribed in the relevant noise control regulations.</p> <p>No construction night lighting must be allowed. If required, minimise lighting in open space areas within development and any external lights must be down lights placed as low as possible and installation of low UV emitting lights, such as most LEDs.</p> <p>Development must be designed to allow unencumbered movement, especially of small faunal species. e.g.</p>	

Nature of Impact	Status	Significance after Mitigation	Mitigation Measures.	
			<p>Speed restrictions must be implemented on all vehicles within the development footprint (40km/h is recommended) to reduced faunal mortalities on the project roads.</p> <p>No night driving should be permitted, if unavoidable, this must be restricted, and speed limits adhered to.</p> <p>Any faunal species that may die as a result of construction must be recorded (i.e. be photographed, GPS co-ordinates taken) and the records uploaded to iNaturalist.</p> <p>A trained snake handler must be onsite during construction to remove any snakes within construction areas.</p> <p>A clause relating to fines, possible dismissal and legal prosecution must be included in all contracts for ALL personnel (i.e. including contractors) working on site should any speeding or persecution of animals occur.</p> <p>All decommissioning related activities (including parking of vehicles and machinery) must remain within the approved project footprint.</p> <p>No decommissioning related activities are permitted within identified 'no-go' areas and a fine system must be put in place for transgressions by the developer and included in contractual agreements with all staff and contractors.</p>	
Combined Impact on Terrestrial Biodiversity	Negative	Low	Implement the mitigation measures identified for plant and animal species outlined above.	
Impact on pan systems due to hydrological changes.	Negative	Low	Any stormwater within the site must be handled in a suitable manner with no discharge being allowed near or into any of the observed systems	
Increase in sedimentation and erosion within the development footprint	Negative	Low	Any stormwater within the site must be handled in a suitable manner to capture large volumes of run-off, trap sediments and reduce flow velocities.	
Potential water quality impacts <sup>2</sup>	Negative	Low	All liquid chemicals including fuels and oil, must be stored in with secondary containment (bunds or containers or berms) that can contain a leak or spill.	

<sup>2</sup> The propose alignment has been developed to avoid the identified wetland depression features as well as their buffers.

Nature of Impact	Status	Significance after Mitigation	Mitigation Measures.	
			<p>Such facilities must be inspected routinely and must have the suitable PPE and spill kits needed to contain likely worst-case scenario leak or spill in that facility, safely.</p> <p>Washing and cleaning of equipment must be done in designated wash bays, where rinse water is contained in evaporation/sedimentation ponds (to capture oils, grease cement and sediment).</p> <p>Mechanical plant and bowsers must not be refuelled or serviced within 100m of a river channel.</p> <p>All construction camps, lay down areas, wash bays, batching plants or areas and any stores should be more than 50 m from any demarcated water courses..</p> <p>Littering and contamination associated with construction activity must be avoided through effective construction camp management;</p> <p>No stockpiling should take place within or near a water course</p> <p>All stockpiles must be protected and located in flat areas where run-off will be minimised and sediment recoverable;</p>	
<p>Construction Phase Archaeological Impacts associated with the damage to or destruction of archaeological sites.</p>	Negative	Low	Report any chance finds of dense accumulations of stone artefacts.	
<p>Heritage Impacts associated with the alteration of and intrusion into the cultural landscape</p>	Negative	Low	Ensure that all construction areas are suitably rehabilitated.	
<p>Short-term landscape change from the current rural/ mining sense of place due to the OHPL construction.</p>	Negative	Medium - Low	<p>Wind blown dust mitigation.</p> <p>Dust mitigation for moving vehicles.</p> <p>50m setback from N14 Highway for the placement of monopoles at the road crossing and the routing located outside of the 70m (centreline) buffer).</p> <p>Should the two Eskom 132kV OHPLs not be constructed, the same 50m</p>	

Nature of Impact	Status	Significance after Mitigation	Mitigation Measures.	
			buffer from the road reserve should be followed.	
Permanent landscape change from the current rural agricultural and mining sense of place to the semi-industrial Energy landscape	Negative	Low	None	

## 2. Terrestrial Biodiversity Impacts

### Site Ecological Importance - Fauna

The Temminick's Pangolin (VU) and Litledale's Whistling Rat (NT) have a high likelihood of occurrence within the project area. As such, the SEI has been assessed for only these species. The SEI for the overall project area is considered low for each habitat based on a medium CI, medium FI and high RR. Given the small size of the proposed facility together with the short construction time frame, it is anticipated that species will return to the PAOI once the disturbance has ceased. As such, the RR for all habitat types is high.

**Table 2:** Sensitivity assessment for faunal species within the project area.

Habitat / Species	Conservation Importance (CI)	Functional Integrity (FI)	Biodiversity Importance (BI)	Receptor Resilience (RR)	SEI
Temminick's Pangolin (VU)	Medium	Medium	Medium	High	Low
in Tarchonanthus Veld and <i>Vachellia erioloba</i> Thornveld	Highly likely occurrence of a VU species listed under the A criterion category.	Semi-intact habitat adjacent to a busy national road and within a busy mining area. Narrow corridors of good habitat connectivity with signs of disturbance in the PAOI.		Receptor resilience is based on the specific project activities. In this instance the project footprint is small and the construction phase will be relatively short meaning that the disturbance to these species will be in the short term with a small spatial extent. As such, this species has a high likelihood of returning to site once the disturbance has ceased.	
	Medium	Medium	Medium	High	Low

Habitat / Species	Conservation Importance (CI)	Functional Integrity (FI)	Biodiversity Importance (BI)	Receptor Resilience (RR)	SEI
Littledale's Whistling Rat (NT)  <i>Parotomys littledalei</i>	Highly likely occurrence of a NT species.	Semi-intact habitat adjacent to a busy national road and within a busy mining area. Narrow corridors of good habitat connectivity with signs of disturbance in the PAOI.		Receptor resilience is based on the specific project activities. In this instance the project footprint is small and the construction phase will be relatively short meaning that the disturbance to these species will be in the short term with a small spatial extent. As such, this species has a high likelihood of returning to site once the disturbance has ceased.	

#### Site Ecological Importance - Flora

Three plant communities within the Kathu Bushveld were identified within the project area. All three communities have a low likelihood of supporting threatened (CR, EN and VU) or NT species and as such the CI for each of them was low. FI was medium due to the habitat being semi-intact and adjacent to a busy national road and mining area. The RR for *Tarchonanthus Veld* and *Vachellia erioloba* Thornveld was medium and for Secondary Vegetation it was high. The overall SEI for *Tarchonanthus Veld* and *Vachellia erioloba* Thornveld was low and for Secondary Vegetation it was very low.

Habitat/ Species	Conservation Importance (CI)	Functional Integrity (FI)	Biodiversity Importance (BI)	Receptor Resilience (RR)	SEI
<b>Kathu Bushveld:</b> <i>Vachellia erioloba</i> Thornveld	<b>Low</b> No confirmed or highly likely occurrence of CR, EN, VU or NT plant species or range restricted species.	<b>Medium</b> Semi-intact habitat adjacent to a busy national road and within a busy mining area. Narrow corridors of good habitat connectivity with signs of disturbance.	<b>Low</b>	<b>Medium</b> Receptor resilience is based on the specific project activities. In this instance the project footprint is small and the construction phase will be relatively short meaning that the disturbance to these species will be in the short term with a small spatial extent. Receptor resilience is medium as it will take more than ten years to restore >70% of the original species composition.	<b>Low</b>
	<b>Low</b>	<b>Medium</b>		<b>Low</b>	

Habitat/ Species	Conservation Importance (CI)	Functional Integrity (FI)	Biodiversity Importance (BI)	Receptor Resilience (RR)	SEI
<b>Kathu Bushveld: Tarchonanthus Veld</b>	No confirmed or highly likely occurrence of CR, EN, VU or NT plant species or range restricted species.	Semi-intact habitat adjacent to a busy national road and within a busy mining area. Narrow corridors of good habitat connectivity with signs of disturbance.		Receptor resilience is based on the specific project activities. In this instance the project footprint is small and the construction phase will be relatively short meaning that the disturbance to these species will be in the short term with a small spatial extent. Receptor resilience is medium as it will take more than ten years to restore >70% of the original species composition.	
<b>Secondary Vegetation</b>	<b>Low</b> No confirmed or highly likely occurrence of CR, EN, VU or NT plant species or range restricted species.	<b>Medium</b> Semi-intact habitat adjacent to a busy national road and within a busy mining area. Narrow corridors of good habitat connectivity with signs of disturbance.	<b>Low</b>	<b>High</b> Receptor resilience is based on the specific project activities. In this instance the project footprint is small and the construction phase will be relatively short meaning that the disturbance to these species will be in the short term with a small spatial extent. Receptor resilience is high as it will take 5-10 years to restore >70% of the original species composition.	<b>Very Low</b>





*Figure 1: Botanical sensitivity map for the project area . This is based on data gathered from the field survey and the desktop assessment.*

### Combined Site Ecological Importance

According to the Species Environmental Assessment Guideline (SANBI, 2020), the SEI evaluated for each taxon/receptor should be combined into a single multi-taxon/receptor evaluation of SEI for the project area to allow the component authority to evaluate the SEI for the entire project area rapidly and at a single glance. As such, the highest overall SEI rating has been applied to each habitat type assessed in terms of the faunal and botanical sensitivity.

**Table 3:** Combined overall SEI for each habitat type.

Habitat	Floral SEI	FAUNAL SEI	OVERALL COMBINED SEI
<i>Vachellia erioloba</i> Thornveld	Low	Low	Low
Tarchonanthus Veld	Low	Low	Low
Secondary Vegetation	Very Low	Very Low	Very Low

### Management Guidelines

Management guidelines recommend the following:

- For areas of **low SEI**, development activities of medium to high impact are acceptable provided appropriate mitigation and management measures are implemented.
- For areas of **very low SEI**, development activities of medium to high impact are acceptable and mitigation and management measures may not be required although they are good practice.

Since project infrastructure is located in an area with an overall SEI of low and very low, development activities of medium to high impact are acceptable, provided appropriate mitigation and management measures are implemented.

### **3. Heritage Impacts**

#### Construction Phase

##### Impacts to archaeological resources

Direct impacts to archaeological resources would occur during the construction phase when machinery enters the site and excavations begin. However, because of the very low cultural significance of the archaeology known to occur, the impact significance is likely to be **low negative**. It is highly unlikely that dense concentrations of buried artefacts would be found in this area but, nonetheless, mitigation would involve reporting any finds made while excavating the pylon foundations. This would enable inspection and further archaeological work as may be required. The rating after mitigation remains **low negative**.

There are no fatal flaws in terms of construction phase impacts to archaeology.

**Table 4:** Assessment of construction phase archaeological impacts.

<b>Nature:</b> Construction Phase Archaeological Impacts associated with: Damage to or destruction of archaeological sites.		
	<b>Without Mitigation</b>	<b>With Mitigation</b>
<b>Extent / Spatial Scope</b>	Local	Local

<b>Duration</b>	Permanent	Permanent
<b>Magnitude / Severity</b>	Low	Low
<b>Probability</b>	Definite	Definite
<b>Significance</b>	<b>Low</b>	<b>Low</b>
<b>Status</b>	Negative	Negative
<b>Irreplaceable loss of resources / Sensitivity of receiving environment</b>	Yes – archaeological resources cannot be replaced or recreated	None – archaeological data will have been rescued and preserved for further study
<b>Can impact be mitigated</b>	Yes	
<b>Mitigation:</b>	Report any chance finds of dense accumulations of stone artefacts.	

#### Impacts to the cultural landscape

Direct impacts to the cultural landscape would occur during the construction phase when construction equipment arrives and construction activity commences. This is due to the visual disruption of the landscape. However, in what is already a heavily industrialised landscape, this aspect is of little concern and the impact significance would be rated as **low negative**. The only mitigation requirement is to ensure that any cleared areas not needed during operation are suitably rehabilitated. After mitigation the impact significance remains **low negative**.

There are no fatal flaws in terms of construction phase impacts to the cultural landscape.

**Table 5:** Assessment of construction phase impacts to the cultural landscape.

<b>Nature:</b> Construction Phase Archaeological Impacts associated with: Alteration of and intrusion into the cultural landscape.		
	<b>Without Mitigation</b>	<b>With Mitigation</b>
<b>Extent / Spatial Scope</b>	Local	Local
<b>Duration</b>	Short term	Short term
<b>Magnitude / Severity</b>	Low	Low
<b>Probability</b>	Definite	Definite
<b>Significance</b>	<b>Low</b>	<b>Low</b>
<b>Status</b>	Negative	Negative

<b>Irreplaceable loss of resources / Sensitivity of receiving environment</b>	No	No
<b>Can impact be mitigated</b>	Only very slightly.	
<b>Mitigation:</b>	Ensure rehabilitation of areas not needed during operation.	

### Operation Phase

#### Impacts to the cultural landscape

Direct impacts to the cultural landscape would occur during the operation phase due to the existence of the proposed powerline in the landscape. Again, because of the highly industrialised surroundings of the study area, the impacts significance is expected to be **low negative**. The only suggested mitigation measure is to ensure that maintenance activities remain within the authorised footprint so as to avoid damaging further areas of land.

There are no fatal flaws in terms of operation phase impacts to the cultural landscape.

**Table 6:** Assessment of operation phase impacts to the cultural landscape.

<b>Nature:</b> Construction Phase Archaeological Impacts associated with: Alteration of and intrusion into the cultural landscape.		
	<b>Without Mitigation</b>	<b>With Mitigation</b>
<b>Extent / Spatial Scope</b>	Local	Local
<b>Duration</b>	Permanent	Permanent
<b>Magnitude / Severity</b>	Low	Low
<b>Probability</b>	Definite	Definite
<b>Significance</b>	<b>Low</b>	<b>Low</b>
<b>Status</b>	Negative	Negative
<b>Irreplaceable loss of resources / Sensitivity of receiving environment</b>	No	No
<b>Can impact be mitigated</b>	Only minimally	
<b>Mitigation:</b>	Ensure that maintenance activities remain within the authorised footprint.	

### Decommissioning Phase

Decommissioning phase impacts are the same as those for the construction phase, except that the equipment would be on site removing the powerline rather than installing it. Impact significance before mitigation is again

**low negative.** In this case mitigation entails ensuring that the entire corridor is suitable rehabilitated after decommissioning. After mitigation the significance remains **low negative**.

**Table 7:** Assessment of operation phase impacts to the cultural landscape.

<b>Nature:</b> Construction Phase Archaeological Impacts associated with: Alteration of and intrusion into the cultural landscape.		
	<b>Without Mitigation</b>	<b>With Mitigation</b>
<b>Extent / Spatial Scope</b>	Local	Local
<b>Duration</b>	Permanent	Permanent
<b>Magnitude / Severity</b>	Low	Low
<b>Probability</b>	Definite	Definite
<b>Significance</b>	<b>Low</b>	<b>Low</b>
<b>Status</b>	Negative	Negative
<b>Irreplaceable loss of resources / Sensitivity of receiving environment</b>	No	No
<b>Can impact be mitigated</b>	No	
<b>Mitigation:</b>	None recommended	

#### Existing impacts to heritage resources

There are currently no obvious threats to heritage resources on the site. The cultural landscape has obviously been massively changed by the development of mining in the area over the last several decades. The significance of the impacts of the mining are considered to be **high negative**.

#### Cumulative impacts

In relation to an activity, cumulative impact “means the past, current and reasonably foreseeable future impact of an activity, considered together with the impact of activities associated with that activity, that in itself may not be significant, but may be significant when added to the existing and reasonably foreseeable impacts eventuating from similar or diverse activities” (NEMA EIA Reg GN R982 of 2014).

The proposed project is very minor in comparison to the existing developments in the area. As such, it is expected that the significance of cumulative impacts on both archaeology and the cultural landscape would be **low negative**. Mitigation measures would be the same as those stated for the individual impacts above.

#### **4. Palaeontological Impacts**

Loss of fossil heritage will be a negative impact. Only the site will be affected by the proposed development. The expected duration of the impact is assessed as potentially permanent. In the absence of mitigation procedures,

the damage or destruction of any palaeontological materials will be permanent. Impacts on palaeontological heritage during the construction phase could potentially occur and are regarded as having a medium probability. As fossil heritage will be destroyed the impact is irreversible. The significance of the impact occurring will be medium pre-mitigation and low post-mitigation.

**Table 8: Summary of Impact Tables**

	Site	Probability	Duration	Magnitude	Reversibility	Irreplicable Loss	Cumulative Effect	Significance
Pre-Mitigation	1	2	4	2	4	4	2	17
Post mitigation	1	2	4	2	4	4	2	17

## 5. Visual Impacts

The following visual impacts could take place during the lifetime of the project:

### Construction:

- Loss of site landscape character due to the removal of vegetation and the construction of the project infrastructure.
- Wind-blown dust due to the removal of large areas of vegetation.
- Possible soil erosion from temporary roads crossing drainage lines.
- Wind-blown litter from the laydown and construction sites.

### Operation:

- Massing effect in the landscape from a large-scale landscape modification.
- On-going soil erosion.
- On-going windblown dust.

### Decommissioning:

- Movement of vehicles and associated dust.
- Wind-blown dust from the disturbance of cover vegetation / gravel.

### Cumulative:

- A long-term change in land use setting a precedent for other similar types of renewable energy projects, resulting in a loss of scenic quality of the local area.

**Table 9: Construction Phase Impacts Table**

Project phase	Construction Phase

<b>Impact</b>	<b>Short-term landscape change from the current rural/ mining sense of place due to the OHPL construction.</b>			
<b>Description of impact</b>	<ul style="list-style-type: none"> <li>• Loss of site landscape character due to the removal of vegetation and the construction of the OHPL structures and associated infrastructure.</li> <li>• Wind-blown litter from the laydown and construction sites.</li> <li>• Movement of large vehicles and cranes along the routing.</li> </ul>			
<b>Mitigation Viability</b>	Medium	The mitigation will partially reduce the significance of the visual and landscape impacts		
<b>Potential mitigation</b>	<ul style="list-style-type: none"> <li>• Wind blown dust mitigation.</li> <li>• Dust mitigation for moving vehicles.</li> <li>• 50m setback from N14 Highway for the placement of monopoles at the road crossing and the routing located outside of the 70m (centreline) buffer).</li> <li>• Should the two Eskom 132kV OHPLs not be constructed, the same 50m buffer from the road reserve should be followed.</li> </ul>			
<b>Assessment</b>	<b>Without mitigation</b>		<b>With mitigation</b>	
<b>Nature</b>	Negative		Negative	
<b>Duration</b>	Short term	Impact will last approximately 12 months.	Short term	Impact will last approximately 12 months.
<b>Extent</b>	Local	Contained within the Foreground/ Mid Ground (approx. 6km from site)	Local	Contained within the Foreground/ Mid Ground (approx. 6km from site)
<b>Intensity</b>	Medium	Natural and/ or social functions and/ or processes are clearly altered.	Medium to Low	Natural and/ or social functions and/ or processes are partially altered.
<b>Probability</b>	Likely	The impact is likely to occur	Likely	The impact is likely to occur.
<b>Confidence</b>	Sure	Substantive supportive data exists to verify the assessment	Sure	Substantive supportive data exists to verify the assessment
<b>Reversibility</b>	Medium	The landscape change is reversible but only with time and rehabilitation.	Medium	The landscape change is reversible but only with time and rehabilitation.
<b>Significance</b>	<b>Medium (-ve)</b>		<b>Medium to Low (-ve)</b>	
<b>Comment on significance</b>	Although for a shorter time period, the full extent development with close proximity to the road receptors, will result in Strong levels of visual contrast during construction.		With mitigation and the reduction in the development area with visual setbacks, the construction phase impact will be Medium.	
<b>Cumulatives</b>	<b>Medium (-ve)</b>		<b>Low (-ve)</b>	

<b>Cumulative impacts</b>	The development without mitigation will set a precedent for development of grid infrastructure in close proximity to the N14 National Road.
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**Table 10: Operation Phase Impacts Table**

<b>Project phase</b>	<b>Operation Phase</b>			
<b>Impact</b>	<b>Permanent landscape change from the current rural agricultural sense of place to the semi-industrial RE landscape.</b>			
<b>Description of impact</b>	<ul style="list-style-type: none"> <li>Long-term loss of site landscape character due to the operation of the EGI structures.</li> </ul>			
<b>Mitigation Viability</b>	Low	Once the OHPL is constructed there is very limited mitigation potential within this landscape context.		
<b>Potential mitigation</b>	<ul style="list-style-type: none"> <li>Not applicable.</li> </ul>			
<b>Assessment</b>	<b>Without mitigation</b>		<b>With mitigation</b>	
<b>Nature</b>	Negative		Negative	
<b>Duration</b>	Long term	Impact will last approximately 20 years	Long term	Impact will last approximately 20 years
<b>Extent</b>	Local	Contained within the Foreground/ Mid Ground (approx. 6km from site)	Local	Contained within the Foreground/ Mid Ground (approx. 6km from site)
<b>Intensity</b>	Medium	Natural and/ or social functions and/ or processes are clearly altered.	Medium to Low	Natural and/ or social functions and/ or processes are partially altered.
<b>Probability</b>	Likely	The impact is likely to occur	Likely	The impact is likely to occur.
<b>Confidence</b>	Sure	Substantive supportive data exists to verify the assessment	Sure	Substantive supportive data exists to verify the assessment
<b>Reversibility</b>	High	The affected landscape will be able to recover from the impact.	Medium	The affected landscape will be able to recover from the impact.
<b>Significance</b>	<b>Medium to High (-ve)</b>		<b>Medium (-ve)</b>	
<b>Comment</b>	Close proximity routing to the N14 would increase the visual intensity of the landscape change and is not recommended.		With mitigation and the setback from the N14 National Road, the Operational Phase impact will be moderated to some degree.	
<b>Cumulatives</b>	<b>Medium (-ve)</b>		<b>Low (-ve)</b>	



<b>Comment</b>	The development without mitigation could set a negative precedent for OHPL routings in close proximity to National Roads.	With mitigation and retaining the visual setback buffers, a suitable precedent would be set for OHPL routing following the existing Eskom precedent.
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## 6. Aquatic Biodiversity Impacts

During the impact assessment study a number of potential key issues / impacts were identified. Note the loss of wetlands (pans) was not assessed as the systems should be avoided and thus no direct impact on these systems or their catchments is anticipated. Also, no structures would be placed within the 50m buffer proposed for the pans (Figure 4).

However, the proposed project could affect these systems through changes in the hydrological environment by the introduction of hard surfaces. Therefore, the following impacts were assessed:

- **Impact 1:** Impact on pans through the possible increase in surface water runoff on form and function, although due to the small catchments and the type of development this is unlikely.
- **Impact 2:** Increase in sedimentation and erosion from the proposed access track.
- **Impact 3:** Physical disturbance by the supporting infrastructure (e.g. roads) on hydrological environment
- **Impact 4:** Potential impacts on localised water quality during the construction and or maintenance.

**Nature:** Impact 1 - Impact on pan systems due to hydrological changes.

The physical removal or the clearing of natural vegetation could alter the hydrological nature of the area, by increasing the surface run-off velocities, while reducing the potential for any run-off to infiltrate the soils. This impact would however be localised (mainly the access road), as a large portion of the remaining farm and the catchment would remain intact and the observed pans can be avoided.

	<b>Without mitigation</b>	<b>With mitigation</b>
<b>Extent</b>	Local (1)	Local (1)
<b>Duration</b>	Long-term (4)	Long-term (4)
<b>Magnitude</b>	Low (4)	Low (4)
<b>Probability</b>	Definite (5)	Probable (3)
<b>Significance</b>	<b>Medium (45)</b>	<b>Low (24)</b>
<b>Status (positive or negative)</b>	Negative	Negative
<b>Reversibility</b>	High	High
<b>Irreplaceable loss of resources</b>	No	No
<b>Can impacts be mitigated</b>	Yes	

### **Mitigation:**

Any stormwater within the site must be handled in a suitable manner with no discharge being allowed near or into any of the observed systems

**Cumulative impacts:**

The increase in surface run-off velocities and the reduction in the potential for groundwater infiltration is likely to occur, however considering that the site is not near any drainage channels and the annual rainfall is low, this impact is not anticipated. It is however assumed, together with the low mean annual run-off that with suitable stormwater management the impacts could however be mitigated, coupled to the fact that a low percentage of projects actually move into the construction phase.

**Residual impacts:**

Diversion of run-off away from downstream systems is unlikely to occur as the annual rainfall figures are low and no natural drainage features or water courses are located within the study area.

**Nature:** Impact 2 - Increase in sedimentation and erosion within the development footprint

	<b>Without mitigation</b>	<b>With mitigation</b>
<b>Extent</b>	Local (1)	Local (1)
<b>Duration</b>	Long-term (4)	Long-term (4)
<b>Magnitude</b>	Low (1)	Low (1)
<b>Probability</b>	Definite (5)	Probable (3)
<b>Significance</b>	<b>Medium (30)</b>	<b>Low (18)</b>
<b>Status (positive or negative)</b>	Negative	Negative
<b>Reversibility</b>	Medium	Medium
<b>Irreplaceable loss of resources</b>	No	No
<b>Can impacts be mitigated</b>	Yes	

**Mitigation:**

Any stormwater within the site must be handled in a suitable manner to capture large volumes of run-off, trap sediments and reduce flow velocities.

**Cumulative impacts:**

Additional downstream erosion and sedimentation of systems lower in the catchment although unlikely due to lack of any water courses and or wetlands.

**Residual impacts:**

Additional downstream erosion and sedimentation of systems lower in the catchment although unlikely due to lack of any water courses.

**Nature:** Impact 4 – Potential water quality impacts

During construction earthworks will expose and mobilise earth materials, and a number of materials as well as chemicals will be imported and used on site and may end up in the surface water, including soaps, oils, grease and fuels, human wastes, cementitious wastes, paints and solvents, etc. Any spills during transport or while works area conducted in proximity to a aquatic system has the potential to affect the surrounding biota, however due to the site locality and lack of aquatic systems / system connectivity this is unlikely.

	Without mitigation	With mitigation
<b>Extent</b>	Local (1)	Local (1)
<b>Duration</b>	Long-term (4)	Long-term (4)
<b>Magnitude</b>	Moderate (6)	Low (3)
<b>Probability</b>	Definite (5)	Probable (3)
<b>Significance</b>	<b>Medium (55)</b>	<b>Low (24)</b>
<b>Status (positive or negative)</b>	Negative	Negative
<b>Reversibility</b>	Medium	Medium
<b>Irreplaceable loss of resources</b>	No	No
<b>Can impacts be mitigated</b>	Yes	

**Mitigation:**

The proposed layout has been developed to avoid any wetlands.

- All liquid chemicals including fuels and oil, must be stored in with secondary containment (bunds or containers or berms) that can contain a leak or spill. Such facilities must be inspected routinely and must have the suitable PPE and spill kits needed to contain likely worst-case scenario leak or spill in that facility, safely.
- Washing and cleaning of equipment must be done in designated wash bays, where rinse water is contained in evaporation/sedimentation ponds (to capture oils, grease cement and sediment).
- Mechanical plant and bowsers must not be refuelled or serviced within 100m of a river channel.
- All construction camps, lay down areas, wash bays, batching plants or areas and any stores should be more than 50 m from any demarcated water courses..
- Littering and contamination associated with construction activity must be avoided through effective construction camp management;
- No stockpiling should take place within or near a water course
- All stockpiles must be protected and located in flat areas where run-off will be minimised and sediment recoverable;

**Cumulative impacts:**

Additional downstream erosion and sedimentation of systems lower in the catchment although unlikely due to lack of any water courses.

**Residual impacts:**

Additional downstream erosion and sedimentation of systems lower in the catchment although unlikely due to lack of any water courses.

## 7. Geotechnical Impacts

Risk	Causes	Impacts	Significance before mitigation	Mitigation	Significance after mitigation
Unexpected ground conditions	<ul style="list-style-type: none"> <li>Potential problem soils including collapse and corrosiveness</li> <li>Occurrence of uncontrolled fill</li> <li>Boulders</li> </ul>	<ul style="list-style-type: none"> <li>Settlement of foundations</li> <li>Instabilities during construction e.g. trench collapse</li> <li>Corrosion of buried structures</li> <li>Changes in design</li> <li>Project delays</li> <li>Increased project costs</li> </ul>	High	<ul style="list-style-type: none"> <li>Conduct geotechnical site investigations and laboratory testing,</li> <li>Foundations to be designed for the prevailing ground conditions</li> <li>Monitor construction works by a professional Engineering Geologist or Geotechnical Engineer</li> </ul>	Low
Flooding	<ul style="list-style-type: none"> <li>Prolonged rain</li> <li>Rise in groundwater levels</li> </ul>	<ul style="list-style-type: none"> <li>Changes in foundation designs,</li> <li>Work stops,</li> <li>Increased costs of repairs,</li> <li>Project delays</li> </ul>	Medium	<ul style="list-style-type: none"> <li>Identify areas of high risk (drainage lines/watercourses) through topographical and hydrological studies</li> <li>Long term monitoring of groundwater levels</li> <li>Stabilize cleared areas during construction</li> </ul>	Low
Material sourcing	<ul style="list-style-type: none"> <li>Unsuitability of on-site materials for use in construction</li> <li>Lack of potential sources near the site</li> </ul>	<ul style="list-style-type: none"> <li>High costs for commercially sourced material</li> <li>Project delays</li> </ul>	Medium	<ul style="list-style-type: none"> <li>Laboratory testing of on-site materials for suitability for use during construction</li> <li>Identify commercial sources near the site</li> <li>Conduct material assessment for identified potential sources</li> </ul>	Low

## 8. Agricultural Impacts

The overall conclusion of this assessment is that the proposed power line and switching station have negligible agricultural impact, regardless of the power line route and design and the agricultural potential and sensitivity of the land it crosses. The agricultural impact of a power line is negligible in almost all environments but is even more so where agricultural land use is predominantly grazing, which it is in the environment that is the subject of this assessment. All possible agricultural activities can continue entirely unhindered underneath the power line. The direct, permanent, physical footprint that has any potential to interfere with agriculture (pylon bases and servitude track, where it is needed), is insignificantly small. Soil degradation can be completely prevented by mitigation. The switching station is entirely located within the BESS facility fence and therefore does not add in any way to the footprint and agricultural impact of that facility, as assessed in the separate assessment for that facility. The power line development will result in negligible loss of future agricultural production potential and its agricultural impact is therefore assessed as being of very low significance and acceptable. From an agricultural impact point of view, it is recommended that the proposed development be approved. The conclusion of this assessment on the acceptability of the proposed development and the recommendation for its approval is not subject to any conditions.