



Appendix G - Detailed Impact Assessment

National Route 2 Intersections and Rehabilitation of Access Roads at Ngxakaxa and Sheshegu Village, Eastern Cape.

Taking the assessment of potential impacts into account, an environmental impact statement is provided that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

Method and criteria for the rating of impacts

Impacts were assessed in terms of the criteria presented in the table below.

Criteria used to determine the significance ratings		Description
Spatial extent		The extent of impact describes the region in which the impact will be experienced:
Site	(S)	Immediate area of impact
Local	(L)	Area within 20km of the development
Regional	(R)	Entire Municipality
Duration		The duration is the time frame in which the impact will be experienced:
Short Term	(ST)	Less than the duration of the activity
Medium Term	(MT)	Impact persists until activity ceases
Long Term	(LT)	Impact persists well beyond the cessation of the activity
Permanent	(P)	Impact is permanent
Probability		The probability of the impact occurring:
Low	(L)	Unlikely
Medium	(M)	Possible
High	(H)	Likely
Intensity or Magnitude of impact		The intensity describes the magnitude or size of the impact:
Low	(L)	Ecological functions may continue undisturbed. No rare or endangered species affected. No objection from I&APs.
Medium	(M)	Ecological functioning temporary affected. No rare or endangered species affected. Some concern from I&APs.
High	(H)	Ecological functioning permanently altered. Rare or endangered species impacted. Major concern from I&APs.



Method for Rating of Impacts

The impacts are assessed (rated) in terms of their significance (high, medium, low), status, status type and confidence through a synthesis of the criteria given in the table above. The rating system is outlined in the table below.

Class	Description
Significance	<ul style="list-style-type: none"> • High: impacts of high magnitude locally for longer than 6 years and/or regionally and beyond. The impact results in major alterations to the environment even if effective mitigation measures are implemented and will have an influence on decision-making. • Medium: impacts of moderate magnitude locally to regionally in the short term. The impact results in medium alterations to the environment and can be reduced or eliminated by the implementation of effective mitigation measures. • Low to very low: impacts will be localised and temporary. Impacts result in minor alterations to the environment and can easily be alleviated by the implementation of effective mitigation measures. • No impact: a potential concern or impact, which, upon evaluation, is found to have no significant impact at all.
Status	<p>The status is the overall effect on the environment:</p> <ul style="list-style-type: none"> • Positive - a 'benefit' • Negative - a 'cost' • Neutral
Status Type	<ul style="list-style-type: none"> • Direct - Caused by construction or related activities and occur at the same time and place. • Indirect - Caused by construction or related activities and occur later in time and/ or farther removed in distance, but are still reasonably foreseeable. • Cumulative - An impact on the environment, which results from the construction or related activities when added to other past, present, but are still reasonably foreseeable. Cumulative impacts can result from individually minor environmental impacts but collectively significant over a period of time.
Confidence	<p>The degree of confidence in predictions based on available information and specialist knowledge:</p> <ul style="list-style-type: none"> • Low • Medium • High



IMPACT ASSESSMENT

Alternative 1 (preferred alternative) and Alternative 2

Planning and design phase

Impacts will be synonymous with the Preferred alternative (A) in the planning and design and construction phase.

No undue negative environmental impacts are expected to arise during the planning and design phase of the project. This prediction is made with high confidence. Hence no rating table is provided.

Alternative 1 (preferred alternative) and Alternative 2

Construction phase

Impacts will be synonymous with the Preferred alternative (A) in the planning and design and construction phase.

During construction surrounding land owners and residents as well as road users will potentially be affected by noise, dust, traffic congestion, damage to service infrastructure and other construction related nuisances. These negative impacts will be mostly site specific and temporary, and will have a low magnitude. With mitigation in place the environmental significance is low or very low. This prediction is made with high confidence.

With mitigation in place the medium to low negative environmental impact on the surrounding Critical Biodiversity Area will remain unchanged from the pre-construction situation. This prediction is made with high confidence

Summary rating table of potential impacts identified for the Construction Phase of Alternative 1 (preferred) and Alternative 2

Impact	Extent	Duration	Probability	Intensity	Significance	Status	Statuses Type	Confidence
Ecology	Local	Short term	Medium	Medium	Low	Negative	Direct	High
Erosion, storm water	Local	Short term	Medium	Medium	Low	Negative	Direct	High
Water courses	Local	Medium Term	Low	Medium	Low	Negative	Direct	High
Noise	Site	Short term	Medium	Low	Low	Negative	Direct	High
Air quality (dust)	Site	Short term	Medium	Low	Low	Negative	Direct	High
Archaeological & Paleontological resources	Site	Short Term	Low	Low	Low	Negative	Direct	High
Loss of species - Vegetation	Site	Short term	Medium	Low	Low	Negative	Direct	High
Waste	Local	Short term	Medium	Low	Low	Negative	Direct	High
Increased risk of fires	Site	Short Term	Low	Low	Low	Negative	Direct	High
Existing services	Local	Medium Term	Low	Medium	Low	Negative	Direct	High
Job Creation	Local	Short term	High	Medium	Low	Positive	Direct	Medium
Traffic	Site	Medium Term	Low	Low	Low	Negative	Direct	High
Storm water Management	Local	Medium Term	Low	Medium	Low	Negative	Indirect	High



(from soil erosion)								
Loss of Habitat	Local	Long Term	Low	Medium	Low	Negative	Indirect	High

Alternative 1 (preferred alternative)

Operational phase

Positive impacts during the operational phase include an increase in the transportation capacity and safety of the roads. The road upgrade will also lead to improved management of stormwater by means of the associated infrastructure improvements that have been proposed. With mitigation in place the medium to low negative environmental impact on the surrounding Critical Biodiversity Area will remain unchanged from the pre-construction situation. This prediction is made with high confidence. Specific impacts during operation are rated in the table below, assuming effective mitigation is implemented.

Summary rating table of potential impacts identified for the operational phase for Alternative 1 (preferred)

Impact	Extent	Duration	Probability	Intensity	Significance	Status	Status Type	Confidence
Storm Water pollution	Local	Medium Term	Low	Low	Low	Negative	Direct	High
Increased runoff and erosion	Local	Medium Term	Low	Low	Low	Negative	Direct	High
Habitat Fragmentation	Local	Long Term	Low	Low	Low	Negative	Direct	High
Loss of Fauna	Local	Long Term	Low	Low	Low	Negative	Direct	High
Noise Pollution	Site	Medium Term	Medium	Low	Low	Negative	Direct	High
Traffic impact:	Site	Medium Term	Low	Low	Low	Negative	Direct	High

Alternative 2

Operational phase

Impacts will be synonymous with the Preferred alternative (A) in the planning and design and construction phase.

However, in the operational phase, Alternative be will not be able to contain stormwater. Design Alternative 2 does not include a side drain, and is suited to flatter areas where there would not be an accumulation of runoff. The access roads and N2 intersections are located on the crest of a gentle undulating hill. The proximity of drainage lines (non-perennial and perennial tributaries) to the intersections and access roads require adequate drainage structures to control storm water runoff, therefore the second design is not suited to capacitate storm water.



Summary rating table of potential impacts identified for the operational phase for Alternative 2

Impact	Extent	Duration	Probability	Intensity	Significance	Status	Status Type	Confidence
Increased runoff and erosion	Local	Medium Term	High	Medium	High	Negative	Direct	High
Habitat Fragmentation	Local	Long Term	Low	Low	Low	Negative	Direct	High
Loss of Fauna	Local	Long Term	Low	Low	Low	Negative	Direct	High
Noise Pollution	Site	Medium Term	Medium	Low	Low	Negative	Direct	High
Traffic impact:	Site	Medium Term	Low	Low	Low	Positive	Direct	High

Alternative 1 (preferred alternative) and Alternative 2

Decommissioning and closure phase

The National Route 2 and Access Roads will not be closed in the foreseeable future. Hence no impacts for this phase need to be rated and no rating table is provided.

NO-GO ALTERNATIVE (compulsory)

No-Go Alternative

Planning and design phase

No undue negative environmental impacts are expected to arise during the planning and design phase of the do-nothing option. This prediction is made with high confidence. Hence no rating table is provided.

No-Go Alternative

Construction phase

No undue negative environmental impacts are expected to arise during the construction phase of the do nothing option. This prediction is made with high confidence. Hence no rating table is provided.

No-Go Alternative

Operational phase

The No-Go alternative is not regarded as a viable option as the road upgrade is well motivated for in terms of National Route standards that need to be achieved for this section. Moreover, the road will become much safer to travel on if the upgrade is made.

Impacts on the ecology are likely to remain unchanged whether the road is upgraded or not. Even though the environmental significance will be low in respect of the ecology, the impact on traffic and erosion management structures will be appreciable. This prediction is made with high confidence. Specific impacts of the do nothing option are rated in the table below..



**Summary rating table of potential impacts if the road upgrade does not go ahead
(NO-GO alternative)**

Impact	Extent	Duration	Probability	Intensity	Significance	Status	Status Type	Confidence
Ecology	Local	Permanent	Medium	Low	Low	Negative	Direct	High
Storm water and erosion	Local	Permanent	Medium	Low	Low	Negative	Direct	High
Traffic	Site	Permanent	Medium	Medium	Medium	Negative	Direct	High

No-Go Alternative

Decommissioning and closure phase

This part is not applicable, hence no rating table is provided.