

DR. COLLEEN EBERSOHN
PhD Univ. Pretoria
Cell:072 222 6013

e-mail: ebersohn@cyberperk.co.za

MS. JANET EBERSOHN

Bsc. Hons. Environmental Management

Cell: 082 557 7122

e-mail: janet@ecoroute.co.za

#### **IMPACT AND RISK ASSESSMENT**

## PROPOSED DEVELOPMENT OF ERF 1058, WHITES ROAD, HOEKWIL (WILDERNESS HEIGHTS) GEORGE MUNICIPALITY & DIVISION, WESTERN CAPE.

Each potential environmental impact and risk identified was assessed according to specific criteria. These included the nature, extent, duration, consequence, probability and frequency of identified impacts, including the degree to which these impacts can be reversed, may cause irreplaceable loss of resources, and can be avoided, managed or mitigated. The criteria are based on the EIA Regulations, published by the Department of Forestry, Fisheries and the Environment (April 1998) in terms of the Environmental Conservation Act No. 73 of 1989. These criteria include:

#### Nature of the impact

This is an estimation of the type of effect the construction, operation and maintenance of a development would have on the affected environment. This description should include what is to be affected and how.

#### Extent of the impact

Describe whether the impact will be: local extending only as far as the development site area; or limited to the site and its immediate surroundings; or will have an impact on the region or will have an impact on a national scale or across international borders.

#### Duration of the impact

The specialist should indicate whether the lifespan of the impact would be short term (0-5 years), medium term (5-15 years), long term (16-30 years) or permanent.

#### Intensity

The specialist should establish whether the impact is destructive or benign and should be qualified as low, medium or high. The specialist study must attempt to quantify the magnitude of the impacts and outline the rationale used.

#### Probability of occurrence

The specialist should describe the probability of the impact actually occurring and should be described as improbable/unlikely (low likelihood), probable (distinct possibility), highly probable (most likely) or definite (impact will occur regardless of any prevention measures).

#### Reversibility

- Completely reversible the impact can be reversed with the implementation of minor mitigation measures.
- Partly reversible the impact is reversible but more intense mitigation measures are required
- Barely reversible the impact is unlikely to be reversed even with intense mitigation measures
- Irreversible the impact is irreversible, and no mitigation measures exist

#### Irreplaceable loss of resources

Describes the degree to which resources will be irreplaceably lost due to the proposed activity. It can be no loss of resources, marginal loss, significant loss or complete loss of resources.

#### Cumulative effect

An effect which in itself may not be significant but may become significant if added to other existing or potential impacts that may result from activities associated with the proposed development. The cumulative effect can be:

- Negligible the impact would result in negligible to no cumulative effect
- Low the impact would result in insignificant cumulative effects
- Medium the impact would result in minor cumulative effects
- High the impact would result in significant cumulative effects

#### <u>Significance</u>

Significance of impacts are determined through a synthesis of the assessment criteria and is described as -

- Low negative- where it would have negligible effects and would require little or no mitigation
- Low positive the impact will have minor positive effects
- Medium negative the impact will have moderate negative effects and will require moderate mitigation
- Medium positive the impact will have moderate positive effects
- High negative the impact will have significant effects and will require significant mitigation measures to achieve an accepted level of impact
- High positive the impact will have significant positive effects
- Very high negative the impact will have highly significant effects and are unlikely to be able to be mitigated adequately
- Very High positive the impact will have highly significant positive effects.



DR. COLLEEN EBERSOHN
PhD Univ. Pretoria
Cell:072 222 6013

e-mail: ebersohn@cyberperk.co.za

MS. JANET EBERSOHN

Bsc. Hons. Environmental Management

Cell: 082 557 7122

e-mail: janet@ecoroute.co.za

## Impacts foreseen during the Construction Phase for Alternative 1 (Preferred Alternative):

Project Phase	Construction				
Impact	Clearance	Clearance of vegetation for the construction of the dwelling, accommodation units, and associated infrastructure			
Description of impact	L	Loss of indigenous vegetation, and habitat loss for terrestrial wildlife.			
Mitigable	Medium	Mitigation exists and will notable	ly reduce sign	ificance of impacts	
Potential mitigation	<ul> <li>construct</li> <li>Areas of project</li> <li>All lands of exotice</li> <li>the remeto const</li> </ul>	<ul> <li>Areas to be developed/disturbed must be specifically demarcated so that during the construction phase, only the demarcated areas be impacted upon.</li> <li>Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, should not be fragmented or disturbed further.</li> <li>All landscaping must comprise of flora species indigenous to the region. The sole use of exotics and the planting of NEMBA listed Alien Invasive Plants is prohibited.</li> <li>the removal and translocation of protected plants if found should be undertaken prior to construction clearing activities. A permit is required prior to removal.</li> </ul>			
	<ul> <li>Protected plants must either be moved to a safer, no-go area on the property or taken to a nursery for temporary storage until rehabilitation takes place.</li> <li>Access by heavy machinery should be limited on the site.</li> <li>Only areas necessary for the development footprint should be cleared and the remainder of the property should be left natural.</li> <li>Laydown areas for construction materials must be contained within the clearing footprint of the proposed development.</li> </ul>				
Assessment		Without mitigation		With mitigation	
Nature	Negative		Low negativ		
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Permanent	Impact may be permanent, or in excess of 20 years	
Extent	Limited	Limited to the site and its immediate surroundings	Very limited	Limited to the site and its immediate surroundings	
Intensity	Low	Natural and/or social functions and/or processes are somewhat altered	Very low	Natural and/or social functions and/or processes are slightly altered	
Probability	Certain / Definite	There are sound scientific reasons to expect that the impact will definitely occur	Probable	Has occurred here or elsewhere and could therefore occur	
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment	
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	High	The affected environmental will be able to recover from the impact	
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce	
Significance		Minor - negative		legligible - negative	
Comment on significance	The location, ecological state, and size of the habitats within the Project Area denotes that it is unlikely that any functional habitat or SCC will be lost as a result of the impacts arising from the proposed development. Landscaping with indigenous plant species will contribute towards a potential positive biodiversity gain.				
Cumulative impacts		would result in insignificant cumu			

PO Box 1252, Sedgefield, 6573

Project Phase		Constr	uction			
Impact		Disturbance to fauna and		of habitats		
Description of	Cut-off of n	natural dispersal and foraging				
impact	ecological ir	frastructure, secondary impacts	s to wildlife suc	ch as noise and lighting.		
Mitigable	Medium	Mitigation exists and will notab				
Potential		encing is required, wildlife gaps	·			
mitigation		iate intervals and be of a suitab	ole dimension	to allow for the movement of		
	small ani					
		• In situations fauna species are located at the site and need to be removed, the				
		relevant specialists must be contacted to advise on how the species can be relocated.				
		a. Is to be disturbed must be specifi	cally demarca	ated to prevent the movement		
		or any individual into the surroun				
		force this.	anig arribarin	ieriis, sainer rape mesi se per		
	•	ust be kept to an absolute mir	nimum during	the evenings and at night to		
	minimise	all possible disturbances to no	cturnal specie	s which are more dependent		
		ory signals for life processes.				
		ping, killing, or poisoning of any w				
		force this. Monitoring must take				
		lighting should be designed an				
		ighting should be directed awc vapor lighting should be avoi				
		e used wherever possible.	aea, ana soc	dioni vapoi (gieen/iea) ligins		
	<ul> <li>Any holes/deep excavations must be dug in a progressive manner and shouldn't be</li> </ul>					
	left open overnight. Should any holes remain open overnight they must be properly					
	covered temporarily to ensure that no small fauna species fall in. Holes must be					
	subsequently inspected for fauna prior to backfilling.					
Assessment		Without mitigation		With mitigation		
Nature	Negative		Low negative			
Duration	Permanent	Impact may be permanent,	Permanent	Impact may be permanent,		
F I I	12-24-21	or in excess of 20 years	Line it and	or in excess of 20 years		
Extent	Limited	Limited to the site and its	Limited	Limited to the site and its immediate surroundings		
Intensity	Low	immediate surroundings Natural and/or social	Very low	Natural and/or social		
illielisily	LOW	functions and/or processes	V GI Y IOW	functions and/or processes		
		are somewhat altered		are slightly altered		
Probability	Probable	Has occurred here or	Rare /	Conceivable, but only in		
,		elsewhere and could	improbable	extreme circumstances,		
		therefore occur		and/or might occur for this		
				project although this has		
				rarely been known to		
0 " 1				result elsewhere		
Confidence	Medium	Determination is based on	Medium	Determination is based on		
		common sense and general knowledge		common sense and general knowledge		
Reversibility	Partly	The impact is reversible but	Partly	The impact is reversible but		
ACT CISIDINITY	reversible	more intense mitigation	reversible	more intense mitigation		
		measures are required		measures are required		
Resource	Low	The resource is not damaged	Low	The resource is not		
irreplaceability		irreparably or is not scarce		damaged irreparably or is		
	not scarce					
Significance		Minor - negative		egligible - negative		
Comment on						
	Habitat is heavily degraded and modified with high anthropogenic activity in close proximity to the majority of the Project Area. No SCC were recorded, nor expected.			recorded, nor expected.		
significance						
significance Cumulative impacts		Il impact affects a negligible pr				

Project Phase	Construction						
Impact			Pollution				
Description of	Pollutio	on of buffer zone and natural are		waste generated by the			
impact			on process.				
Mitigable	High	Mitigation exists and will consid					
Potential mitigation	<ul> <li>Waste management must be a priority and all waste must be collected and stored effectively and responsibly. Refuse bins will be responsibly emptied and secured. Temporary storage of domestic waste shall be in covered and secured waste skips. Dangerous waste such as metal wires and glass must be safely stored before being moved off site as soon as possible. Under no circumstances may domestic waste be burned on site or buried on open pits.</li> <li>Separation and recycling of different waste materials should be supported.</li> <li>Litter, spills, fuels, chemical and human waste in and around the Project Area must be minimised and controlled.</li> <li>Cement mixing may not be performed on the ground. It is recommended that only closed side drum or pan type concrete mixers be utilised. Any spills must be immediately contained and isolated from the natural environment, before being removed from site.</li> <li>Toilets at the recommended Health and Safety standards must be provided. Portable toilets must be emptied regularly to prevent overflow. Once no longer required, they must be pumped dry to prevent leakage into the surrounding environment and removed from site.</li> <li>Where a registered disposal facility is not available close to the Project Area, the</li> </ul>						
Accessment	Contrac	Contractor shall provide a method statement with regards to waste management.					
Assessment	Nogativo	Without mitigation	Lovenogative	With mitigation			
Nature Duration	Negative Short term	Impact will lost between 1	Low negative Brief				
	Shon lenn	Impact will last between 1 and 5 years		Impact will not last longer than 1 year			
Extent	Very limited	Limited to the site and its immediate surroundings	Very limited	Limited to the site and its immediate surroundings			
Intensity	Low	Natural and/or social functions and/or processes are somewhat altered	Very low	Natural and/or social functions and/or processes are slightly altered			
Probability	Likely	The impact may occur	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere			
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment			
Reversibility	High	The affected environmental will be able to recover from the impact	High	The affected environmental will be able to recover from the impact			
Resource irreplaceability	Low						
Significance		legligible - negative		egligible - negative			
Comment on significance		n activities are likely to generate s ouffer zone and natural areas.	significant quo	intities of solid waste that could			
Cumulative impacts	The impact	would result in insignificant cumu	ulative effects.				

Project Phase		Constr	ruction			
Impact			on Vehicles			
Description of	Po	ollution caused by the operation	of vehicles an	d heavy machinery.		
impact						
Mitigable	High	Mitigation exists and will consid	erably reduce	significance of impacts		
Potential		ction activities must be confine	•			
mitigation	•	unnecessary disturbance the su	•			
	No vehicles are to park or operate within "no-go" areas.					
		fors and all other machinery and				
		aily. No machinery or vehicles wit				
		ng and fuel storage areas, and and machinery, must be loca				
		around them (sized to contain 1	•			
		spills. These areas must not be k				
	-	ntial flow paths and must be loca		•		
	-	tractors used for the project show				
		oil spills are clean-up and discard		,		
Assessment		Without mitigation		With mitigation		
Nature	Negative		Low negative			
Duration	Short term	Impact will last between 1	Brief	Impact will not last longer		
		and 5 years		than 1 year		
Extent	Very	Limited to the site and its	Very	Limited to the site and its		
	limited	immediate surroundings	limited	immediate surroundings		
Intensity	Low	Natural and/or social	Very low	Natural and/or social		
		nctions and/or processes functions and/or processes				
Probability	Likely	are somewhat altered	Rare /	are slightly altered Conceivable, but only in		
Probability	LIKEIY	The impact may occur	improbable	extreme circumstances,		
			Improbable	and/or might occur for this		
				project although this has		
				rarely been known to result		
				elsewhere		
Confidence	High	Substantive supportive data	High	Substantive supportive data		
		exists to verify the assessment		exists to verify the		
				assessment		
Reversibility	High	The affected environmental	High	The affected environmental		
		will be able to recover from		will be able to recover from		
_		the impact		the impact		
Resource	Low	The resource is not damaged	Low	The resource is not		
irreplaceability		irreparably or is not scarce		damaged irreparably or is		
Significance	Negligible - negative  Negligible - negative  Negligible - negative					
Comment on		of vehicles could result in spillage				
significance		o unnecessary disturbance of no				
Cumulative		would result in insignificant cumu				
impacts						
.,	1					

Project Phase		Construction				
Impact			ınagement			
Description of impact	Poter	ntial erosion during clearance of th	ne site and incre	eased stormwater runoff		
Mitigable	High Mit	igation exists and will considerably	reduce the sig	nificance of impacts		
Potential mitigation	Ens     co     Cle     do     Re     bic     foc     Ens     pro     Re	<ul> <li>Ensure that construction activities do not cause any preferential flow paths and concentrated surface runoff during rainfall events.</li> <li>Clearly demarcate the construction area and ensure that heavy machinery does not compact soil or disturb vegetation outside of these demarcated areas.</li> <li>Reduce transport of sediment through use of structures such as silt fences and biodegradable coir logs placed along a contour below the development footprint.</li> <li>Ensure that vegetation clearing is conducted in parallel with the construction progress to minimise erosion and runoff.</li> <li>Revegetate exposed areas once construction has been completed.</li> </ul>				
Assessment	CO	concentrated runoff and associated erosion.  Without mitigation  With mitigation				
Nature	Negative			Willi Hilligalion		
Duration	Short	Impact will last between 1 and 5 years	Brief	Impact will not last longer than 1 year		
Extent	Limited	Limited to the site and its immediate surroundings	Very limited	Limited to specific isolated parts of the site		
Intensity	Low	Natural and/or social functions and/or processes are somewhat altered	Very low	Natural and/ or social functions and/ or processes are slightly altered		
Probability	Almost certain	It is most likely that the impact will occur	Likely	The impact may occur		
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment		
Reversibility	Medium  The affected environment will only recover from the impact with significant intervention		High	The affected environmental will be able to recover from the impact		
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce		
Significance		Minor - negative		gligible - negative		
Comment on significance	and the co	es on the property will be vulneral onstruction phase. It is therefore im are implemented.	nportant that ap	opropriate erosion control		
Cumulative impacts	Without m stormwate	itigation this impact could result in r.	potential erosic	on on site caused by		

Project Phase	Construction				
Impact		Disturbance / removal of topsoil			
Description of impact		Disturbance of topsoil, potential soil erosion and the loss of topsoil			
Mitigable	Hig Mitigation exists and will considerably reduce the significance of impacts h				
Potential mitigation	<ul> <li>Areas that are disturbed through building activities (such as the excavations for pipelines) should be suitably rehabilitated without delay. Failure to do so will have a knock-on effect on biodiversity in the form of an increase in wind erosion, soil exposure and a loss of the soil micro-organisms that are essential for plant growth.</li> <li>Organic matter, such as roots and humus/topsoil should be removed from the footprint of structures and stockpiled separately for landscaping purposes.</li> <li>The stockpiling of topsoil for use in rehabilitation is required.</li> <li>Stockpiles must not exceed 1.5m in height, must be covered with shade cloth or similar, to prevent erosion and any invasive alien species that begin to grow within it must be removed.</li> <li>Soil disturbance during the removal of alien invasive plants must be minimised as much as possible.</li> <li>The site must be stabilised where necessary using available materials, where possible. It is recommended that exposed soils are covered with wood chips, and tree branches used to create berms. Any cut alien vegetation on site can be utilised for this purpose if it is without seed.</li> </ul>				
Assessment		Without mitigation With mitigation			
Nature	Negative		Low Negative		
Duration	Short term	Impact will last between 1 and 5 years	Brief	Impact will not last longer than 1 year	
Extent	Limited	Limited to the site and its immediate surroundings	Very limited	Limited to specific isolated parts of the site	
Intensity	Low	Natural and/or social functions and/or processes are somewhat altered	Very low	Natural and/ or social functions and/ or processes are slightly altered	
Probability	Almost certain	It is most likely that the impact will occur	Likely	The impact may occur	
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment	
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	High	The affected environmental will be able to recover from the impact	
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce	
Significance		Negligible - negative		inor - negative	
Comment on significance	may lead to envisaged t	Clearing areas of the site in preparation for construction will expose bare soil which may lead to the potential loss of topsoil through runoff and incorrect storage. This is not envisaged to be a significant impact with mitigation measures in place. Topsoil can be reused on site for rehabilitation purposes.			
Cumulative impacts	Without miti	gation this impact could result in p flow.	ootential erosior	n on the site caused by	

Project Phase		Constr	uction			
Impact		Noise p	ollution			
Description of		Noise caused by m	nachinery and sta	ff		
impact						
Mitigable	Low	Low Mitigation does not exist; or mitigation will slightly reduce the				
		significance of impacts				
Potential		tion activities must only take	place during nor	mal working times between		
mitigation		00 on weekdays.				
		ry may be fitted with silence	•			
		t be reminded that they are	e working within c	residential area and noise		
Assessment		ist be kept low. Nout mitigation	14/	ith mitigation		
Nature	Negative	iour miligation	Negative	iin miligalion		
Duration	Brief	Impact will not last longer	Brief	Impact will not last longer		
Dorallon	Diloi	than 1 year	Diloi	than 1 year		
Extent	Limited	Limited to the site and its	Limited	Limited to the site and its		
		immediate surroundings		immediate surroundings		
Intensity	Very low	Natural and/ or social	Negligible	Natural and/ or social		
		functions and/ or		functions and/ or		
		processes are slightly		processes are negligibly		
		altered		altered		
Probability	Almost certain	It is most likely that the	Almost certain	It is most likely that the		
	/ Highly	impact will occur	/ Highly	impact will occur		
	probable		probable			
Confidence	Medium	Determination is based	Medium	Determination is based		
		on common sense and		on common sense and		
Dana malla ilila	I I ala	general knowledge The affected	I I ala	general knowledge The affected		
Reversibility	High	environmental will be	High	environmental will be		
		able to recover from the		able to recover from the		
		impact		impact		
Resource	Not relevant		Not relevant			
irreplaceability						
Significance	Mir	nor - negative	Negli	gible - negative		
Comment on		noise pollution during constru				
significance	the impact will b	e reduced.		-		
Cumulative	No cumulative ir	npacts exist.				
impacts						

Project Phase		Construction				
Impact		Visual impact				
Description of	Visu	ual & aesthetic consequences of the proposed project				
impact						
Mitigable	Medium	Mitigation exists and will notably reduce significance of impacts				
Potential mitigation	the natural ver  The potential variation a professionall (including enginelude:  The LA mine arthwork reducing of the LA mine which tree	measures be implemented during the construction phase to protect getation, to control the noise, dust and visual intrusion. visual impacts and proposed mitigation thereof must be undertaken by y registered landscape architect that must be part of the design team gineers and architects). The brief of the landscape architect (LA) must consult with both engineers and architects to ensure that sensitive and building design development occurs, which will allow for the construction and operation phase visual impacts. Just work with the project surveyor, arborist and planners in establishing es are to remain on site for visual screening and taking this information esign development of the civil and building works.				

	o The LA must prepare a landscape plan, design development thereof and monitoring implementation and thereafter maintenance. The plan must include the tree survey and what trees are, what indigenous vegetation is, to be retained, what is to be removed, the planting of indigenous trees, new trees and shrub planting along roadways and in open spaces in the built areas and a guideline document for private gardens within the development.			
Assessment	Withou	ut mitigation	With mitigation	
Nature	Negative		Negative	
Duration	Short term	Impact will last between 1 and 5 years	Short term	Impact will last between 1 and 5 years
Extent	Local	Extending across the site and to nearby settlements	Local	Extending across the site and to nearby settlements
Intensity	Low	Natural and/ or social functions and/ or processes are	Very low	Natural and/or social functions and/or processes are slightly altered

Likely

High

High

Not

The proposal is sensitive towards the character of the area and attempts to create a

unique sense of place that will blend in and compliment the ambience of the surrounding

relevant

The impact may occur

Substantive supportive data

The affected environmental will be able to recover from

the impact

Negligible - negative

exists to verify the assessment

somewhat altered

scientific reasons to expect that the impact will definitely occur

Substantive supportive

data exists to verify the

environment will only

There are sound

assessment

The affected

intervention

Minor - negative

No cumulative impacts exist.

recover from the impact with significant

impacts					
Project Phase		Constru	ction		
Impact		Employ	ment		
Description of	Empowerme	ent of the local community memb	ers living in th	ne area relating to temporary	
impact		employment o	pportunities		
Mitigable	Medium	Medium Mitigation only exists to ensure that the positive impact is followed through.			
Potential mitigation	repre	<ul> <li>Use existing social structures and communication channels to ensure social representation.</li> <li>Use local labour and source local materials as far as possible.</li> </ul>			
Assessment		Without mitigation		With mitigation	
Nature	Negative		Positive		
Duration	Short term	Impact will last between 1 and 5 years	Short term	Impact will last between 1 and 5 years	
Extent	Local	Extending across the site and to nearby settlements	Local	Extending across the site and to nearby settlements	
Intensity	Low	Natural and/ or social functions and/ or processes are somewhat altered	Low	Natural and/ or social functions and/ or processes are somewhat altered	

**Probability** 

Confidence

Reversibility

Resource

irreplaceability

Significance

Comment on significance

Cumulative

Certain / Definite

High

Medium

Not relevant

area.

Probability	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere	Almost certain / Highly probable	It is most likely that the impact will occur	
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge	
Reversibility	Not relevant		Not relevant		
Resource irreplaceability	Not relevant		Not relevant		
Significance	N	egligible - negative	N	legligible - positive	
Comment on significance	Due to the proposed development being on a small-scale, there is a low difference in impacts between without mitigation and with mitigation. However, as the impact would be positive for the local community to be employed during construction, mitigation is recommended to ensure this occurs.				
Cumulative impacts	Minor upliftme	ent for the local community.			

# Impacts foreseen during the Operational Phase for the Alternative 1 (Preferred Alternative):

Project Phase		Opero	ıtion		
Impact		Visual / Sens	e of place		
Description of	Visual impacts	Visual impacts of structures / aesthetic consequences due to incorrect or excessive			
impact		lighting, especially	outdoor lighti	ng	
Mitigable	Medium	Mitigation exists and will not		ignificance of impacts	
Potential	<ul> <li>Municipa</li> </ul>	l by-laws need to be adhere	d to.		
mitigation	<ul> <li>Re-veget</li> </ul>	ation and Landscaping of c	pen space a	reas with suitable indigenous	
	vegetatio				
	· '	ic removal and follow-up ope	erations of invo	asive alien plants.	
		o the Landscape Plan.			
				ninimise impacts on fauna. All	
	•		•	ensitive areas. Fluorescent and	
	-		olded, and soc	dium vapor (green/red) lights	
		e used wherever possible			
Assessment		nout mitigation		With mitigation	
Nature	Negative		Negative Lov		
Duration	Permanent	Impact may be	Medium	Impact will last between 5	
		permanent, or in excess	Term	and 15 years	
Extent	Local	of 20 years	Local	Extending generaths site	
extent	Local	Extending across the site and to nearby settlements	Local	Extending across the site	
Intensity	Low	Natural and/ or social	Very low	and to nearby settlements  Natural and/or social	
intensity	LOW	functions and/ or	Very low	functions and/or processes	
		processes are somewhat		are slightly altered	
		altered		are slightly differed	
Probability	Probable	Has occurred here or	Rare /	Conceivable, but only in	
,		elsewhere and could	improbable	extreme circumstances,	
		therefore occur	·	and/or might occur for this	
	project although this has				
	rarely been known to				
				result elsewhere	
Confidence	Medium	Determination is based on	Medium	Determination is based on	
		common sense and		common sense and	
		general knowledge		general knowledge	
Reversibility	Medium	The affected environment	High	The affected environmental	
		will only recover from the		will be able to recover from	
		impact with significant		the impact	
_		intervention			
Resource	Not relevant		Not		
irreplaceability	relevant				
Significance		nor - negative		egligible - negative	
Comment on				ut it provides a level of security	
significance			_	out should be implemented in	
Cumulativa		es not cause negative impac on the development would no			
Cumulative					
impacts	by the municipality. Specifically design guidelines for the local area.				

Project Phase	Operation
Impact	Stormwater Management
Description of	Accelerated erosion / pollution into sub-surface water.
impact	
Mitigable	High Mitigation exists and will considerably reduce the significance of impacts

Potential mitigation	that will I  Stormwa Drainage should b inter alia  R U e st	that will lead to erosion of the surrounding landscape.  • Stormwater generated on site should be managed according to Sustainable Drainage System (SuDS) principles. This requires that as much stormwater as possible should be attenuated within the development footprint. The following measures, inter alia, should be considered:  • Rainwater harvesting tanks must be installed;  • Use of swales and detention ponds to attenuate stormwater runoff, encourage infiltration and reduce the speed, energy and volumes at which stormwater is discharged from the site;  • Use of permeable paving to encourage infiltration into the soil; and			
Assessment		thout mitigation		h mitigation	
Nature	Negative		Low Negative		
Duration	Short term	Impact will last between 1 and 5 years	Brief	Impact will not last longer than 1 year	
Extent	Limited	Limited to the site and its immediate surroundings	Very limited	Limited to specific isolated parts of the site	
Intensity	Low	Natural and/or social functions and/or processes are somewhat altered	Very low	Natural and/ or social functions and/ or processes are slightly altered	
Probability	Almost certain	It is most likely that the impact will occur	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere	
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment	
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	High	The affected environmental will be able to recover from the impact	
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce	
Significance	Negligible - negative Minor - negative				
Comment on significance  Cumulative	A key impact related to residential developments is the generation of large volumes of stormwater associated with an increased area of impermeable surfaces (i.e. roads, roofs and other infrastructure). Stormwater is typically conveyed into watercourses, where high volumes (and associated high energy) cause degradation of watercourses, mainly due to the erosion of the bed and banks. In this respect given the steep slopes within the property, even though the drainage line is located outside of the development footprint, it is potentially vulnerable to stormwater impacts.  Without mitigation this impact could result in potential erosion on the site caused by				
impacts	stormwater flow				

Project Phase Impact	Operation Eradication of Alien Vegetation			
Description of impact	Imp	Impacts on biodiversity / natural habitats / increased fire risk		
Mitigable	High	Mitigation exists and will considerably reduce significance of impacts		

impacts

stormwater flow.

<ul> <li>All invasive alien plants should be completely cleared from the property, and where a tree or bush cover is desired, replaced with suitable indigenous species.</li> <li>Rehabilitation of disturbed areas, as well as previously invaded areas, should promote establishment of site-appropriate indigenous species.</li> <li>An Alien Control Plan should be implemented to systematically remove and control alien plant species.</li> <li>Follow-up operations must be done.</li> <li>Minimise disturbance to the natural vegetation using low impact manual labour</li> </ul>
techniques.  • Reduce fire hazard on site.

	* Redoce inc	Hazara Orrano.			
Assessment	Withou	ut mitigation	With mitigation		
Nature	Negative		Positive		
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Brief	Impact will not last longer than 1 year	
Extent	Limited	Limited to the site and its immediate surroundings	Limited	Limited to the site and its immediate surroundings	
Intensity	Medium	Natural and/or social functions and/or processes are notably altered	Medium	Natural and/or social functions and/or processes are notably altered	
Probability	Certain / Definite	There are sound scientific reasons to expect that the impact will definitely occur	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere	
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge	
Reversibility	Low	The affected environment will not be able to recover from the impact - permanently modified	Medium	The affected environment will only recover from the impact with significant intervention	
Resource irreplaceability	Not relevant		Not relevant		
Significance	Moderate - negative			Moderate - positive	
Comment on significance	An approved AIP Control Plan is in place, and much of the property has already been legally eradicated of AIP. The control of AIP on the property has a positive impact on biodiversity.				
Cumulative impacts	Without mitigation this impact could result in the spread of alien invasive plants and the loss of indigenous vegetation.				

Project Phase	Operation			
Impact		Landso	caping	
Description of	Habitat I	oss for terrestrial wildlife, fro	gmentation of ecological corridor	
impact				
Mitigable	Low	Low Mitigation will slightly reduce the significance of impacts		
Potential mitigation	<ul><li>Areas that are indigenous veg</li><li>All alien invasiv</li><li>All landscaping</li></ul>	<ul> <li>The Landscape Plan must be implemented and adhered to.</li> <li>Areas that are not required for development purposes should remain natural with indigenous vegetation.</li> <li>All alien invasive plants must be removed from the site on an on-going basis.</li> <li>All landscaping must comprise of flora species indigenous to the region. The sole use of exotics and the planting of NEMBA listed Alien Invasive Plants is prohibited.</li> </ul>		
Assessment	Withou	ut mitigation	With mitigation	
Nature	Negative		Positive	

Duration	Brief	Impact will not last	Permanent	Impact may be permanent,
		longer than 1 year		or in excess of 20 years
Extent	Limited	Limited to the site and	Very limited	Limited to specific isolated
		its immediate		parts of the site
		surroundings		
Intensity	Negligible	Natural and/ or social	Very low	Natural and/ or social
		functions and/ or		functions and/ or processes
		processes are negligibly		are slightly altered
		altered		
Probability	Highly unlikely /	Expected never to	Almost	It is most likely that the
	None	happen	certain /	impact will occur
			Highly	
			probable	
Confidence	Medium	Determination is based	Medium	Determination is based on
		on common sense and		common sense and general
		general knowledge		knowledge
Reversibility	Medium	The affected	Not relevant	
		environment will only		
		recover from the		
		impact with significant		
		intervention		
Resource	Low	The resource is not	Not relevant	
irreplaceability		damaged irreparably		
		or is not scarce		
Significance	Negligible - negative Minor - positive			
Comment on	With mitigation the impact is likely to have more beneficial impact to retaining natural			npact to retaining natural
significance		biodiversity, than without mitigation.		
Cumulative	_		ne spread of al	ien invasive plants and the loss
impacts	of indigenous vege	tation.		

### Impacts foreseen during the Construction Phase for Alternative 2:

Project Phase		Constr	uction	
Impact	Clearance	of vegetation for the construction		ng, accommodation units, and
		associated infrastructure		
Description of impact	L	Loss of indigenous vegetation, and habitat loss for terrestrial wildlife.		
Mitigable	Medium	Mitigation exists and will notabl	y reduce signi	ificance of impacts
Potential mitigation	<ul> <li>Areas to construct</li> <li>Areas of project</li> <li>All lands of exotict</li> <li>the remote to construct</li> <li>Protected taken to</li> <li>Access</li> <li>Only are remained</li> <li>Laydow</li> </ul>	<ul> <li>Medium   Mitigation exists and will notably reduce significance of impacts</li> <li>Areas to be developed/disturbed must be specifically demarcated so that during the construction phase, only the demarcated areas be impacted upon.</li> <li>Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, should not be fragmented or disturbed further.</li> <li>All landscaping must comprise of flora species indigenous to the region. The sole use of exotics and the planting of NEMBA listed Alien Invasive Plants is prohibited.</li> <li>the removal and translocation of protected plants if found should be undertaken prior to construction clearing activities. A permit is required prior to removal.</li> <li>Protected plants must either be moved to a safer, no-go area on the property or taken to a nursery for temporary storage until rehabilitation takes place.</li> <li>Access by heavy machinery should be limited on the site.</li> <li>Only areas necessary for the development footprint should be cleared and the remainder of the property should be left natural.</li> <li>Laydown areas for construction materials must be contained within the clearing</li> </ul>		
A	footprin	t of the proposed development.		NACIAL
Assessment Nature	Nogativo	Without mitigation	Low pogativ	With mitigation
Duration	Negative Permanent	Impact may be permanent,	Low negative Permanent	Impact may be permanent,
		or in excess of 20 years		or in excess of 20 years
Extent	Limited	Limited to the site and its immediate surroundings	Very limited	Limited to the site and its immediate surroundings
Intensity	Low	Natural and/or social functions and/or processes are somewhat altered	Very low	Natural and/or social functions and/or processes are slightly altered
Probability	Certain / Definite	There are sound scientific reasons to expect that the impact will definitely occur	Probable	Has occurred here or elsewhere and could therefore occur
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance		Minor - negative	N	egligible - negative
Comment on significance	The location, ecological state, and size of the habitats within the Project Area denotes that it is unlikely that any functional habitat or SCC will be lost as a result of the impacts arising from the proposed development. Landscaping with indigenous plant species will contribute towards a potential positive biodiversity gain.			
Cumulative impacts	The impact	The impact would result in insignificant cumulative effects		

Project Phase		Constr	ruction	
Impact		Disturbance to fauna and	fragmentation	of habitats
Description of	Cut-off of r	natural dispersal and foraging	movement b	by animals, fragmentation of
impact	ecological ir	nfrastructure, secondary impacts	s to wildlife suc	ch as noise and lighting.
Mitigable	Medium	Medium Mitigation exists and will notably reduce significance of impacts		
Potential		Where fencing is required, wildlife gaps in the perimeter fence must be installed at		
mitigation		iate intervals and be of a suitab	ole dimension	to allow for the movement of
	small an			
		ons fauna species are located		
	relevant relocate	specialists must be contacted	a to aavise o	on now the species can be
			ically demarca	ated to prevent the movement
		<ul> <li>The areas to be disturbed must be specifically demarcated to prevent the movement of staff or any individual into the surrounding environments, barrier tape must be put</li> </ul>		
		force this.	anig on the	erns, samer rape mest se per
	•	ust be kept to an absolute mir	nimum during	the evenings and at night to
	minimise	all possible disturbances to no	cturnal specie	s which are more dependent
		ory signals for life processes.		
		ping, killing, or poisoning of any w		- · · · · · · · · · · · · · · · · · · ·
		force this. Monitoring must take		
		lighting should be designed an ighting should be directed awa		
		vapor lighting should be avoi	•	
		e used wherever possible.	idea, and soc	dioni vapoi (green/rea) ligins
		es/deep excavations must be du	ua in a progres	sive manner and shouldn't be
		n overnight. Should any holes re		
		temporarily to ensure that no	·	-
		ently inspected for fauna prior to		
Assessment		Without mitigation		With mitigation
Nature	Negative		Low negative	
Duration	Permanent	Impact may be permanent,	Permanent	Impact may be permanent,
F. J I	Time!he el	or in excess of 20 years	I the state of	or in excess of 20 years
Extent	Limited	Limited to the site and its	Limited	Limited to the site and its
Intensity	Low	immediate surroundings Natural and/or social	Very low	immediate surroundings  Natural and/or social
illielishy	LOW	functions and/or processes	V GI Y IOW	functions and/or processes
		are somewhat altered		are slightly altered
Probability	Probable	Has occurred here or	Rare /	Conceivable, but only in
110200,	1100000	elsewhere and could	improbable	extreme circumstances,
		therefore occur	,	and/or might occur for this
				project although this has
				rarely been known to
				result elsewhere
Confidence	Medium	Determination is based on	Medium	Determination is based on
		common sense and general		common sense and general
Reversibility	Partly	knowledge The impact is reversible but	Partly	knowledge The impact is reversible but
Keversioniny	reversible	more intense mitigation	reversible	more intense mitigation
	1010131010	measures are required	10 40131010	measures are required
Resource	Low	The resource is not damaged	Low	The resource is not
irreplaceability		irreparably or is not scarce		damaged irreparably or is
•				not scarce
Significance		Minor - negative		egligible - negative
Comment on		eavily degraded and modified		
significance		the majority of the Project Area.		
Cumulative impacts		ıl impact affects a negligible pr	oportion of the	e overall habitat available for
	wildlife.			

Project Phase		Consti	ruction	
Impact		Waste F	Pollution	
Description of	Pollutio	on of buffer zone and natural are	eas caused by	waste generated by the
impact			on process.	
Mitigable	High			
Potential	Waste management must be a priority and all waste must be collected and stored			
mitigation	Tempor Danger moved burned Separat Litter, sp minimiss Cemen closed immedi remove Toilets a toilets m must be remove	effectively and responsibly. Refuse bins will be responsibly emptied and secured. Temporary storage of domestic waste shall be in covered and secured waste skips. Dangerous waste such as metal wires and glass must be safely stored before being moved off site as soon as possible. Under no circumstances may domestic waste be burned on site or buried on open pits.  • Separation and recycling of different waste materials should be supported.  • Litter, spills, fuels, chemical and human waste in and around the Project Area must be minimised and controlled.  • Cement mixing may not be performed on the ground. It is recommended that only closed side drum or pan type concrete mixers be utilised. Any spills must be immediately contained and isolated from the natural environment, before being removed from site.  • Toilets at the recommended Health and Safety standards must be provided. Portable toilets must be emptied regularly to prevent overflow. Once no longer required, they must be pumped dry to prevent leakage into the surrounding environment and removed from site.  • Where a registered disposal facility is not available close to the Project Area, the		
	Contrac	ctor shall provide a method state	ement with reg	
Assessment		Without mitigation		With mitigation
Nature	Negative	India and collinate to the collinate	Low negative	
Duration	Short term	Impact will last between 1 and 5 years	Brief	Impact will not last longer than 1 year
Extent	Very	Limited to the site and its	Very	Limited to the site and its
	limited	immediate surroundings	limited	immediate surroundings
Intensity	Low	Natural and/or social functions and/or processes are somewhat altered	Very low	Natural and/or social functions and/or processes are slightly altered
Probability	Likely	The impact may occur	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
Reversibility	High	The affected environmental will be able to recover from the impact	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance		legligible - negative		egligible - negative
Comment on significance	pollute the l	n activities are likely to generate s ouffer zone and natural areas.		
Cumulative impacts	The impact	would result in insignificant cumu	ulative effects.	

Project Phase	Construction				
Impact		Construction Vehicles			
Description of	Po	Pollution caused by the operation of vehicles and heavy machinery.			
impact					
Mitigable	High	Mitigation exists and will consid			
Potential		ction activities must be confine			
mitigation		prevent unnecessary disturbance the surrounding environment.			
		<ul> <li>No vehicles are to park or operate within "no-go" areas.</li> <li>Excavators and all other machinery and vehicles must be checked for oil and fuel</li> </ul>			
		ally. No machinery or vehicles wit			
		ng and fuel storage areas, and			
		and machinery, must be loca			
		around them (sized to contain 1			
		spills. These areas must not be lo			
		ntial flow paths and must be locc			
		tractors used for the project shou	•	its available to ensure that any	
	fuel or c	oil spills are clean-up and discard	ed correctly.		
Assessment		Without mitigation		With mitigation	
Nature	Negative	I	Low negative		
Duration	Short term	Impact will last between 1	Brief	Impact will not last longer	
Evient	Von	and 5 years Limited to the site and its	Von	than 1 year Limited to the site and its	
Extent	Very limited	immediate surroundings	Very limited	immediate surroundings	
Intensity	Low	Natural and/or social	Very low	Natural and/or social	
illicitally	LOW	functions and/or processes	V GI Y IOVV	functions and/or processes	
		are somewhat altered		are slightly altered	
Probability	Likely	The impact may occur	Rare /	Conceivable, but only in	
,	,	, , , , , , , , , , , , , , , , , , , ,	improbable	extreme circumstances,	
	and/or might occur for this				
	project although this has				
				rarely been known to result	
				elsewhere	
Confidence	High	Substantive supportive data	High	Substantive supportive data	
		exists to verify the assessment		exists to verify the	
B " ""	1.1* 1	T	112	assessment	
Reversibility	High	The affected environmental	High	The affected environmental	
		will be able to recover from the impact		will be able to recover from the impact	
Resource	Low	The resource is not damaged	Low	The resource is not	
irreplaceability		irreparably or is not scarce	LOW	damaged irreparably or is	
opiaccas,	not scarce				
Significance	Negligible - negative Negligible - negative				
Comment on		of vehicles could result in spillage			
significance		to unnecessary disturbance of no		·	
Cumulative	The impact	would result in insignificant cumu	lative effects.		
impacts					

Project Phase	Construction
Impact	Erosion Management
Description of	Potential erosion during clearance of the site and increased stormwater runoff
impact	
Mitigable	High Mitigation exists and will considerably reduce the significance of impacts
Potential	Ensure that construction activities do not cause any preferential flow paths and
mitigation	concentrated surface runoff during rainfall events.
	Clearly demarcate the construction area and ensure that heavy machinery
	does not compact soil or disturb vegetation outside of these demarcated areas.

	<ul> <li>Reduce transport of sediment through use of structures such as silt fences and biodegradable coir logs placed along a contour below the development footprint.</li> <li>Ensure that vegetation clearing is conducted in parallel with the construction progress to minimise erosion and runoff.</li> <li>Revegetate exposed areas once construction has been completed.</li> <li>Ensure that stormwater and runoff generated by hardened surfaces is discharged in retention areas (i.e. swales or retention ponds), to avoid concentrated runoff and associated erosion.</li> </ul>					
Assessment		Without mitigation	1	With mitigation		
Nature	Negative		Low Negative			
Duration	Short term	Impact will last between 1 and 5 years	Brief	Impact will not last longer than 1 year		
Extent	Limited	Limited to the site and its immediate surroundings	Very limited	Limited to specific isolated parts of the site		
Intensity	Low	Natural and/or social functions and/or processes are somewhat altered	Very low	Natural and/ or social functions and/ or processes are slightly altered		
Probability	Almost certain	It is most likely that the impact will occur	Likely	The impact may occur		
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment		
Reversibility	Medium	The affected environment will only recover from the impact	High	The affected environmental will be able		

irreplaceability	I irreparably or is not scarce	admaged irreparably or is				
		not scarce				
Significance	Minor - negative	Negligible - negative				
Comment on	Steep slopes on the property will be vulnerable to erosion during clearance of the site					
significance	and the construction phase. It is therefore important that appropriate erosion control					
	measures are implemented.					
Cumulative	Without mitigation this impact could result in potential erosion on site caused by					
impacts	stormwater.					

Low

with significant intervention

The resource is not damaged

Project Phase	Construction				
Impact	Disturbance / removal of topsoil				
Description of impact	Disturbance of topsoil, potential soil erosion and the loss of topsoil				
Mitigable	Hig Mitigation exists and will considerably reduce the significance of impacts h				
Potential mitigation	<ul> <li>Areas that are disturbed through building activities (such as the excavations for pipelines) should be suitably rehabilitated without delay. Failure to do so will have a knock-on effect on biodiversity in the form of an increase in wind erosion, soil exposure and a loss of the soil micro-organisms that are essential for plant growth.</li> <li>Organic matter, such as roots and humus/topsoil should be removed from the footprint of structures and stockpiled separately for landscaping purposes.</li> <li>The stockpiling of topsoil for use in rehabilitation is required.</li> <li>Stockpiles must not exceed 1.5m in height, must be covered with shade cloth or similar, to prevent erosion and any invasive alien species that begin to grow within it must be removed.</li> <li>Soil disturbance during the removal of alien invasive plants must be minimised as much as possible.</li> </ul>				

Resource

Low

to recover from the

The resource is not

impact

	The site must be stabilised where necessary using available materials, where possible. It is recommended that exposed soils are covered with wood chips, and tree branches used to create berms. Any cut alien vegetation on site can be utilised for this purpose if it is without seed.					
Assessment	01111300	Without mitigation		Vith mitigation		
Nature	Negative		Low Negative	<u> </u>		
Duration	Short term	Impact will last between 1 and 5 years	Brief	Impact will not last longer than 1 year		
Extent	Limited	Limited to the site and its immediate surroundings	Very limited	Limited to specific isolated parts of the site		
Intensity	Low	Natural and/or social functions and/or processes are somewhat altered	Very low	Natural and/ or social functions and/ or processes are slightly altered		
Probability	Almost certain	It is most likely that the impact will occur	Likely	The impact may occur		
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment		
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	I High The affected			
Resource irreplaceability	Low					
Significance	Negligible - negative Minor - negative					
Comment on significance	Clearing areas of the site in preparation for construction will expose bare soil which may lead to the potential loss of topsoil through runoff and incorrect storage. This is not envisaged to be a significant impact with mitigation measures in place. Topsoil can be reused on site for rehabilitation purposes.					
Cumulative impacts	Without mitigation this impact could result in potential erosion on the site caused by stormwater flow.					

Project Phase	Construction				
Impact		Noise p	ollution		
Description of impact		Noise caused by m	nachinery and sta	ff	
Mitigable	Low	Mitigation does not exist; o significance of impacts	r mitigation will slig	ghtly reduce the	
Potential mitigation	<ul> <li>Construction activities must only take place during normal working times between 07:00-17:00 on weekdays.</li> <li>Machinery may be fitted with silences to dampen noise.</li> <li>Staff must be reminded that they are working within a residential area and noise levels must be kept low.</li> </ul>				
Assessment	With	out mitigation	Wi	ith mitigation	
Nature	Negative		Negative		
Duration	Brief	Impact will not last longer than 1 year	Brief	Impact will not last longer than 1 year	
Extent	Limited Limited to the site and its immediate surroundings		Limited	Limited to the site and its immediate surroundings	
Intensity	Very low	Natural and/ or social functions and/ or processes are slightly altered	Negligible	Natural and/ or social functions and/ or processes are negligibly altered	

Probability	Almost certain / Highly	It is most likely that the impact will occur	Almost certain / Highly	It is most likely that the impact will occur		
	probable		probable			
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge		
Reversibility	High	The affected environmental will be able to recover from the impact	High	The affected environmental will be able to recover from the impact		
Resource	Not relevant		Not relevant			
irreplaceability						
Significance	Minor - negative Negligible - negative					
Comment on	Some extent of noise pollution during construction is expected; however, with mitigation					
significance	the impact will be reduced.					
Cumulative	No cumulative ir	npacts exist.				
impacts						

Project Phase	Construction					
Impact	Visual impact					
Description of impact	Visual & aesthetic consequences of the proposed project					
Mitigable	Medium	Mitigation exists and will	notably redu	ce significance of impacts		
Potential	The necessary	measures be implemente	ed during the	construction phase to protect		
mitigation	the natural ve	getation, to control the no	ise, dust and	visual intrusion.		
	·		•	thereof must be undertaken by		
	•			nust be part of the design team		
	including eng	gineers and architects). In	e brief of the	landscape architect (LA) must		
		ust consult with both engir	neers and ar	chitects to ensure that sensitive		
		•		occurs, which will allow for		
		the construction and oper	•			
				rist and planners in establishing		
				ning and taking this information		
		esign development of the				
				gn development thereof and		
	monitoring implementation and thereafter maintenance. The plan must include the tree survey and what trees are, what indigenous vegetation is, to be					
				ndigenous trees, new trees and		
	shrub planting along roadways and in open spaces in the built areas and a					
	guideline document for private gardens within the development.					
Assessment		ut mitigation		With mitigation		
Nature	Negative	T	Negative			
Duration	Short term	Impact will last	Short term	Impact will last between 1		
		between 1 and 5 years		and 5 years		
Extent	Local	Extending across the site and to nearby	Local	Extending across the site and		
		settlements		to nearby settlements		
Intensity	Low	Natural and/ or social	Very low	Natural and/or social		
,		functions and/ or		functions and/or processes		
		processes are		are slightly altered		
		somewhat altered				
Probability	Certain / Definite	There are sound	Likely	The impact may occur		
		scientific reasons to				
		expect that the impact will definitely occur				
		will delifillely occur				

Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment	
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	High	The affected environmental will be able to recover from the impact	
Resource	Not relevant		Not		
irreplaceability			relevant		
Significance	Minor	r - negative	N	legligible - negative	
Comment on significance	The proposal is sensitive towards the character of the area and attempts to create a unique sense of place that will blend in and compliment the ambience of the surrounding area.				
Cumulative impacts	No cumulative imp	acts exist.			

Project Phase	Construction				
Impact	<b>Employment</b>				
Description of	Empowerment of the local community members living in the area relating to temporary				
impact		employment o			
Mitigable	Medium	Mitigation only exists to ensure through.	that the posit	ive impact is followed	
Potential mitigation	repres	xisting social structures and co entation. cal labour and source local mate		s possible.	
Assessment		Without mitigation		With mitigation	
Nature	Negative		Positive		
Duration	Short term	Impact will last between 1 and 5 years	Short term	Impact will last between 1 and 5 years	
Extent	Local	Extending across the site and to nearby settlements	Local	Extending across the site and to nearby settlements	
Intensity	Low	Natural and/ or social functions and/ or processes are somewhat altered	Low	Natural and/ or social functions and/ or processes are somewhat altered	
Probability	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere	Almost certain / Highly probable	It is most likely that the impact will occur	
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge	
Reversibility	Not relevant		Not relevant		
Resource irreplaceability	Not relevant		Not relevant		
Significance	Negligible - negative Negligible - positive				
Comment on significance	Due to the proposed development being on a small-scale, there is a low difference in impacts between without mitigation and with mitigation. However, as the impact would be positive for the local community to be employed during construction, mitigation is recommended to ensure this occurs.				
Cumulative impacts	Minor upliftme	ent for the local community.			

### Impacts foreseen during the Operational Phase for Alternative 2:

Project Phase	Operation					
Impact	Visual / Sense of place					
Description of	Visual impacts	s of structures / aesthetic con	•			
impact		lighting, especially				
Mitigable	Medium	Mitigation exists and will not		ignificance of impacts		
Potential		I by-laws need to be adhere				
mitigation	_	· · · · · · · · · · · · · · · · · · ·	ppen space a	reas with suitable indigenous		
	vegetatio			and the self-and tendent		
		ic removal and follow-up ope the Landscape Plan.	erations of trive	asive dilen pianis.		
			nd limited to n	ninimise impacts on fauna. All		
				ensitive areas. Fluorescent and		
				dium vapor (green/red) lights		
	-	e used wherever possible				
Assessment	With	nout mitigation		With mitigation		
Nature	Negative		Negative Lov			
Duration	Permanent	Impact may be	Medium	Impact will last between 5		
		permanent, or in excess	Term	and 15 years		
		of 20 years				
Extent	Local	Extending across the site	Local	Extending across the site		
Intensity	Low	and to nearby settlements  Natural and/ or social	Very low	and to nearby settlements  Natural and/or social		
illielishy	LOW	functions and/ or	Very low	functions and/or processes		
	processes are somewhat are slightly altered					
	altered					
Probability	Probable	Has occurred here or	Rare /	Conceivable, but only in		
	elsewhere and could improbable extreme circumstances,					
		therefore occur		and/or might occur for this		
				project although this has		
				rarely been known to		
Confidence	Medium	Determination is based on	Medium	result elsewhere  Determination is based on		
Confidence	Medium	common sense and	Medium	common sense and		
		general knowledge		general knowledge		
Reversibility	Medium	The affected environment	High	The affected environmental		
,	will only recover from the will be able to recover from					
	impact with significant the impact					
	intervention					
Resource	Not relevant		Not			
irreplaceability	relevant					
Significance		nor - negative		egligible - negative		
Comment on			•	ut it provides a level of security		
significance			-	out should be implemented in		
Cumulative		es not cause negative impac on the development would no				
impacts						
ipacis	by the municipality. Specifically design guidelines for the local area.					

Project Phase	Operation		
Impact		Stormwater Management	
Description of	Accelerated erosion / pollution into sub-surface water.		
impact			
Mitigable	High	Mitigation exists and will considerably reduce the significance of impacts	

Potential mitigation	<ul> <li>A sustainable stormwater design must be implemented to prevent excessive run-off that will lead to erosion of the surrounding landscape.</li> <li>Stormwater generated on site should be managed according to Sustainable Drainage System (SuDS) principles. This requires that as much stormwater as possible should be attenuated within the development footprint. The following measures, inter alia, should be considered:         <ul> <li>Rainwater harvesting tanks must be installed;</li> <li>Use of swales and detention ponds to attenuate stormwater runoff, encourage infiltration and reduce the speed, energy and volumes at which stormwater is discharged from the site;</li> <li>Use of permeable paving to encourage infiltration into the soil; and</li> <li>Use of retention ponds and artificial wetlands to capture stormwater runoff and prevent its discharge from the site.</li> </ul> </li> </ul>				
Assessment		thout mitigation		h mitigation	
Nature	Negative		Low Negative		
Duration	Short term	Impact will last between 1 and 5 years	Brief	Impact will not last longer than 1 year	
Extent	Limited	Limited to the site and its immediate surroundings	Very limited	Limited to specific isolated parts of the site	
Intensity	Low	Natural and/or social functions and/or processes are somewhat altered	Very low	Natural and/ or social functions and/ or processes are slightly altered	
Probability	Almost certain	It is most likely that the impact will occur	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere	
Confidence	High	Substantive supportive data exists to verify the assessment			
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	High	The affected environmental will be able to recover from the impact	
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce	
Significance	Neg	lligible - negative	Min	or - negative	
Comment on significance  Cumulative	A key impact related to residential developments is the generation of large volumes of stormwater associated with an increased area of impermeable surfaces (i.e. roads, roofs and other infrastructure). Stormwater is typically conveyed into watercourses, where high volumes (and associated high energy) cause degradation of watercourses, mainly due to the erosion of the bed and banks. In this respect given the steep slopes within the property, even though the drainage line is located outside of the development footprint, it is potentially vulnerable to stormwater impacts.  Without mitigation this impact could result in potential erosion on the site caused by				
impacts	stormwater flow				

Project Phase Impact	Operation Eradication of Alien Vegetation		
Description of impact	Impacts on biodiversity / natural habitats / increased fire risk		
Mitigable	High	Mitigation exists and will considerably reduce significance of impacts	

impacts

stormwater flow.

Potential mitigation	<ul> <li>All invasive alien plants should be completely cleared from the property, and where a tree or bush cover is desired, replaced with suitable indigenous species.</li> <li>Rehabilitation of disturbed areas, as well as previously invaded areas, should promote establishment of site-appropriate indigenous species.</li> <li>An Alien Control Plan should be implemented to systematically remove and control alien plant species.</li> <li>Follow-up operations must be done.</li> <li>Minimise disturbance to the natural vegetation using low impact manual labour techniques.</li> <li>Reduce fire hazard on site.</li> </ul>
	1.00000 11.01.01201 01.01101

Assessment	Without mitigation		With mitigation	
Nature	Negative		Positive	
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Brief	Impact will not last longer than 1 year
Extent	Limited	Limited to the site and its immediate surroundings	Limited	Limited to the site and its immediate surroundings
Intensity	Medium	Natural and/or social functions and/or processes are notably altered	Medium	Natural and/or social functions and/or processes are notably altered
Probability	Certain / Definite	There are sound scientific reasons to expect that the impact will definitely occur	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	Low	The affected environment will not be able to recover from the impact - permanently modified	Medium	The affected environment will only recover from the impact with significant intervention
Resource irreplaceability	Not relevant		Not relevant	
Significance		ıte - negative		Moderate - positive
Comment on significance	An approved AIP Control Plan is in place, and much of the property has already been legally eradicated of AIP. The control of AIP on the property has a positive impact on biodiversity.			
Cumulative impacts	Without mitigation this impact could result in the spread of alien invasive plants and the loss of indigenous vegetation.			

Project Phase	Operation			
Impact	Landscaping			
Description of impact	Habitat loss for terrestrial wildlife, fragmentation of ecological corridor			
Mitigable	Low	Mitigation will slightly reduce the significance of impacts		
Potential mitigation	<ul> <li>The Landscape Plan must be implemented and adhered to.</li> <li>Areas that are not required for development purposes should remain natural with indigenous vegetation.</li> <li>All alien invasive plants must be removed from the site on an on-going basis.</li> <li>All landscaping must comprise of flora species indigenous to the region. The sole use of exotics and the planting of NEMBA listed Alien Invasive Plants is prohibited.</li> </ul>			
Assessment	Withou	t mitigation	With mitigation	
Nature	Negative		Positive	

Duration	Brief	Impact will not last	Permanent	Impact may be permanent,
		longer than 1 year		or in excess of 20 years
Extent	Limited	Limited to the site and	Very limited	Limited to specific isolated
		its immediate		parts of the site
		surroundings		
Intensity	Negligible	Natural and/ or social	Very low	Natural and/ or social
		functions and/ or		functions and/ or processes
		processes are negligibly		are slightly altered
		altered		
Probability	Highly unlikely /	Expected never to	Almost	It is most likely that the
	None	happen	certain /	impact will occur
			Highly	
			probable	
Confidence	Medium	Determination is based	Medium	Determination is based on .
		on common sense and		common sense and general
		general knowledge		knowledge
Reversibility	Medium	The affected	Not relevant	
		environment will only		
		recover from the		
		impact with significant		
_		intervention		
Resource	Low	The resource is not	Not relevant	
irreplaceability		damaged irreparably		
		or is not scarce		
Significance	Negligible - negative		Minor - positive	
Comment on	With mitigation the impact is likely to have more beneficial impact to retaining natural			
significance	biodiversity, than without mitigation.			
Cumulative	Without mitigation this impact could result in the spread of alien invasive plants and the loss			
impacts	of indigenous vegetation.			