

DR. COLLEEN EBERSOHN

PhD Univ. Pretoria

Cell:072 222 6013

e-mail: <u>ebersohn@cyberperk.co.za</u>

MS. JANET EBERSOHN

Bsc. Hons. Environmental Management

Cell: 082 557 7122

e-mail: janet@ecoroute.co.za

IMPACT AND RISK ASSESSMENT

Proposed Residential Development on Portion 91 of Farm Matjes Fontein 304, Keurboomstrand, Plettenberg Bay, Western Cape Province

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.

Mitigation Measures

Ways in which an impact can be avoided, minimised, or managed to reduce its environmental significance.

Extent of the impact - the scale of the impact				
Rating	Definition of Rating			
Very Limited	Extending only as far as the development site area			
Limited	Limited to the site and its immediate surroundings			
Local	Extending across the site and to nearby settlements			
Regional	The region, which may be defined in various ways, e.g. cadastral, catchment, topographic.			
National	National scale or across international borders			

Duration of the impact - the lifespan or length of time the impact will last					
Rating Definition of Rating					
Brief	Impact will not last longer than 1 year				
Short term	nort term Impact will last between 1 and 2 years				

PO Box 1252, Sedgefield, 6573

Medium Term	m Term Impact will last between 2 and 15 years				
Long Term Impact will last more than 15 years					
Permanent	Impact may be permanent, or in excess of 20 years				
Very High Natural and/ or social functions and/ or processes are severely altere					

Intensity - the severity of the impact				
Rating	Definition of Rating			
Negligible	Natural and/ or social functions and/ or processes are negligibly altered			
Low	Natural and/or social functions and/or processes are slightly altered			
Medium	Natural and/or social functions and/or processes are notably altered			
High	Natural and/ or social functions and/ or processes are significantly altered			
Very High	Natural and/ or social functions and/ or processes are severely altered			

Probability of occurrence - the probability of the impact occurring					
Rating Definition of Rating					
Improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere				
Possible	Has occurred here or elsewhere and could therefore occur				
Probable	It is most likely that the impact will occur				
Definite	There are sound scientific reasons to expect that the impact will occur				

Reversibility - the ability of the impacted environment to return to its pre-impacted state				
Rating	Definition of Rating			
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 - the degree to which resources will be irreplaceably lost					
Rating	Definition of Rating				
Negligible	No loss of resources				
Low	Marginal loss, the resource is not damaged irreparably or is not scarce				
Medium	the resource is damaged irreparably but is represented elsewhere				
High	Irreparable damage and is not represented elsewhere				

Confidence - the level of confidence in the assessment rating					
Low	Judgement is based on intuition				
Medium Determination is based on common sense and general knowledge					
High Substantive supportive data exists to verify the assessment					

Significance - Significance of impacts are determined through a synthesis of the assessment criteria					
Rating		Definition of Rating			
	Major negative (-)	The impact will have highly significant effects and are unlikely to be able to be mitigated adequately			
	Moderate negative (-)	The impact will have medium significant effects and will require moderate mitigation measures to achieve an accepted level of impact			
	Minor negative (-)	The impact will have low significant effects and will require minor mitigation			
	Negligible negative (-)	The impact will have very low significant effects and would require little mitigation			
	Neutral	The impact will have insignificant effects and would require no mitigation			
	Negligible positive (+)	The impact will have negligible positive effects			
	Minor positive (+)	The impact will have minor positive effects			
	Moderate positive (+)	The impact will have moderate positive effects			
	Major High positive (+)	The impact will have highly significant positive effects.			

Impacts foreseen during the Construction Phase for the Preferred Alternative (60 Residential stands):

Project Phase	Construction				
Activity	Loss of habitat within CBAs				
Description of impact	Encroachment into and loss of CBA1 and CBA2 areas due construction.				
Mitigable	Medium	Mitigation exists and will notab	ly reduce sign	ificance of impacts	
Potential mitigation	Some form of offset or conservation servitude can be considered.				
Assessment		Without mitigation		With mitigation	
Nature	Negative		Low negative	e	
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	Limited	Limited to the site and its immediate surroundings	
Intensity	Medium	Natural and/or social functions and/or processes are notably altered	Low	Natural and/or social functions and/or processes are somewhat altered	
Probability	Definite	There are sound scientific reasons to expect that the impact will occur	Definite	There are sound scientific reasons to expect that the impact will occur	
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment	
Reversibility	Completely reversible	the impact can be reversed with the implementation of minor mitigation measures.	Completely reversible	the impact can be reversed with the implementation of minor mitigation measures.	
Resource irreplaceability Medium the resource is damaged irreparably but is represented elsewhere Medium the resource is damaged irreparably but is represented elsewhere represe		the resource is damaged irreparably but is represented elsewhere			
Significance		Minor - negative		Minor - negative	
Comment on significance	The site occurs entirely within CBA1 and CBA2 areas. The secondary vegetation ("pastures") in the southern part of the site does not have the properties consistent with protecting biodiversity patterns, but remaining areas are ecologically functional. The vegetation on site (within the proposed development footprint) is in relatively poor condition, and consists either of lawns or secondary vegetation with a species composition that is not representative of the natural habitat				
Cumulative impacts	The impact would result in insignificant cumulative effects as the significance of the impacts is low. The CBAs are designated for the protection of listed Garden Route shale fynbos, but this does not occur within these designated CBA1 areas, only forest.				

Project Phase Construction					
Activity	Clearance of vegetation for the construction of the dwelling and associated				
	infrastructure				
Description of	Loss of sensitive vegetation, habitat loss for terrestrial wildlife, mortalities to various				
impact	species unable to evade the disturbance, loss of viable propagules, fragmentation of				
	ecological infrastructure				
Mitigable	Medium Mitigation exists and will notably reduce significance of impacts				

Potential mitigation	 Wherever there are sections of undisturbed natural habitat within the development area, they should not be impacted by the building activities and should be conserved as small islands of natural resources for the small wildlife of the area. the removal and translocation of protected plants if found should be undertaken prior to construction clearing activities. A permit is required prior to removal. 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. Access by heavy machinery should be limited on the site. Only areas necessary for the development footprint should be cleared and the remainder of the property should be left natural. Laydown areas for construction materials must be contained within the clearing footprint of the proposed development. A 20-meter buffer zone must be retained along the base of the slope to protect the forest margin. 			
Assessment		Without mitigation		With mitigation
Nature	Negative		Low negativ	e
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	High	Natural and/ or social functions and/ or processes are significantly altered	Low	Natural and/or social functions and/or processes are somewhat altered
Probability	Definite	There are sound scientific reasons to expect that the impact will 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	Irreversible	the impact is irreversible, and no mitigation measures exist	Partly reversible	the impact is reversible but more intense mitigation measures are required
Resource irreplaceability	Medium	the resource is damaged irreparably but is represented elsewhere	Low	Marginal loss, the resource is not damaged irreparably or is not scarce
Significance		Minor - negative		egligible - negative
Comment on significance	The forested area to the north of the development is excluded from the proposed development and will not be directly affected.			
Cumulative impacts	The impact would result in insignificant cumulative effects			

Project Phase	Construction			
Activity	Loss of secondary vegetation within endangered ecosystem			
Description of	Loss of habitat on site (within the proposed development footprint), modification of			
impact	ecological processes, spillover effects into surrounding areas due mostly to secondary impacts such as boundary disturbance and alien invasive species spread.			
Mitigable	Medium Mitigation exists and will notably reduce significance of impacts			
Potential mitigation	 Access to forested areas during construction must not be permitted by any construction personnel. These areas must be fenced off and no access allowed. Compile and implement an alien management plan, which highlights control priorities and areas and provides a programme for long-term control. Undertake regular monitoring to detect alien invasions early so that they can be controlled, as per the Alien Management Plan. 			

	Rehabilitation of disturbed areas, as well as previously invaded areas, should promote establishment of site-appropriate indigenous species.			
_	pron	• • • • • • • • • • • • • • • • • • • •	priate indigen	•
Assessment		Without mitigation	With mitigation	
Nature	Negative		Low negative	
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	Medium	Natural and/or social functions and/or processes are notably altered	Low	Natural and/or social functions and/or processes are somewhat altered
Probability	Certain / Definite	There are sound scientific reasons to expect that the impact will definitely occur	Certain / Definite	There are sound scientific reasons to expect that the impact will definitely occur
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
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	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 vegetation type (Garden Route Shale Fynbos) is listed as Endangered. All upland areas of the site on the steep slopes are covered with forest that matches the description for Southern Afrotemperate Forest, which is not threatened, but is separately listed as protected under the National Forests Act. The forest areas on site fall within a CBA1. These forested areas are completely excluded from the proposed development (both options) and are not directly affected. The only remaining non-forest vegetation on site is considered to be secondary. However, on the basis that no legal soil disturbance has occurred during the preceding 10 years, it is legally considered to be natural vegetation that is within an Endangered ecosystem. It is, however, not representative of this vegetation unit and, being			
Cumulative impacts		s not considered to be irreplace would result in insignificant cumu		

Project Phase	Construction			
Activity		Loss of individuals of p	rotected tree	species
Description of impact	Loss of habite protected tre	at on site (within the proposed d	evelopment fo	potprint), disturbance or loss of
Mitigable	Medium	Mitigation exists and will notab	ly reduce sign	ificance of impacts
Potential mitigation	 Retain existing large trees within proposed development. If any trees need to be removed or pruned then a permit is required, according to the National Forests Act. Plant additional milkwoods in the development as part of the final landscaping. These can be planted along with other appropriate coastal forest species, but the proportions and composition should reflect habitat that would have occurred naturally at this site. 			
Assessment	Without mitigation With mitigation			
Nature	Negative		Low negative	e
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Long Term	Impact will last between 16 and 30 years

Extent	Very	Limited to the site and its	Very	Limited to the site and its
	limited	immediate surroundings	limited	immediate surroundings
Intensity	Very high	Natural and/ or social	Low	Natural and/or social
		functions and/ or processes		functions and/or processes
		are majorly altered		are somewhat 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
				result elsewhere
Confidence	Medium	Determination is based on	Medium	Determination is based on
		common sense and general		common sense and general
		knowledge		knowledge
Reversibility	Partly	The impact is reversible but	Partly	The impact is reversible but
	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	Ne	egligible - negative
Comment on		cies affected is Sideroxylon inerm		
significance	A total of 4 individuals were seen on site, all of them relatively large individuals. The species			
	is widespread but is a key and dominant component of coastal forests in the Garden			
	Route.			
Cumulative	The impact v	would result in insignificant cumu	lative effects	
impacts				

Project Phase		Constr	uction	
Activity	Loss of habitat for listed threatened animal species			
Description of impact Mitigable Potential mitigation	areas due m spread. Medium Prote Reho marg good Fores biodi must retain steps spec mesie	at for threatened plant and animostly to secondary impacts such Mitigation exists and will notable and improve the small spill that and improve the small gin vegetation typical of mounted habitat for various frogs, including that the stressity and conservation value, or not be affected by the proposed along the base of the slope is should be taken to rehabilitaties, such as Pterocelastrus tricular and fire-resistant.	nal species, spas dust deposed sign accent to the part of the part	pillover effects into surrounding ition and alien invasive species difficance of impacts proposed development site. In the impact of the site, including introducing pondorested areas. This will provide of Afrixalus knysnae. In part of the site, have high mated as sensitive. These areas ment. A buffer zone should be the forest margin. For example, as and encourage growth of Sideroxylon inerme, that are
	 An open space management system should be developed to formalize steps for forest protection. 			
Assessment		Without mitigation		With mitigation
Nature	Negative		Low negative	e
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	Very high	Natural and/ or social functions and/ or processes are majorly altered	Low	Natural and/or social functions and/or processes are somewhat altered
Probability	Probable	Has occurred here or elsewhere and could therefore 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	Partly reversible	The impact is reversible but more intense mitigation measures are required	Partly reversible	The impact is reversible but more intense mitigation measures are required
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 ₀	egligible - negative
Comment on significance	 There is habitat on site that is suspected habitat for threatened plant and animal species. This is the forest habitat, which is outside the proposed development footprint and will not be affected by the proposed development. The species that could potentially occur within this habitat are as follows: Knysna Warbler (Vulnerable) has a moderate probability of occurring in forest margin areas. Crowned Eagle (Near Threatened) - the forests on site may constitute part of the general foraging range but it is unlikely that they are resident on site, or are dependent on it. Tunnelling Dung Beetle (Endangered). The type locality of the species is forest habitats in the Keurboomstrand area. Small antelope (Vulnerable). There is a moderate to high probability of it occurring in the forests on site. 			
Cumulative		ll impact affects a negligible pro		e overall habitat available for
impacts	these specie	s and will not directly affect any	individuals.	

Project Phase		Constr	uction	
Activity		Earthworks and vegetation cle	aring for cons	truction activities
Description of	Sedimentati	on of the pond resulting in po	or water qual	lity. Destruction of vegetation
impact	around the	oond and spring.		
Mitigable	High	Mitigation exists and will notab	ly reduce sign	ificance of impacts
Potential mitigation	oper cons • Add • Site i	 Pre-construction erect temporary fencing along the entire green corridor and open space to protect the pond as well as the corridor from impact during construction. Add signage to the fence indicating the area as No-Go. 		
Assessment		Without mitigation		With mitigation
Nature	Negative		Low negativ	e
Duration	Short term	Impact will last between 1 and 2 years.	Brief	Impact will not last longer than 1 year.
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	Negligible	Natural and/ or social functions and/ or processes are negligibly altered

Probability	Possible	Has occurred here or elsewhere and could therefore 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	Completely reversible	The impact can be reversed with the implementation of minor mitigation measures.	Completely reversible	The impact can be reversed with the implementation of minor mitigation measures.
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	Ne	egligible - negative
Comment on significance	While a natural spring and pond are present on the site, they are very small in extent and can be adequately protected from the development by implementing the 10m buffer during the construction and operational phases as indicated in this report. The presence of this feature is not sufficient to increase the sensitivity of the site to Very High, and it has been excluded from the development area. No stormwater should be put into this pond as the water is of high quality .			
Cumulative impacts	The impact v	vould result in insignificant cumu	lative effects.	

Project Phase	Construction				
Activity		Waste I	Pollution		
Description of	Pollutic	on of buffer zones and natural ar		waste generated by the	
impact			on process.		
Mitigable	High	Mitigation exists and will consid			
Potential mitigation	 All construction waste generated on-site during construction must be adequately managed. Separation and recycling of different waste materials should be supported. All construction waste materials must be collected and disposed of at a suitable waste facility. No dumping of construction material within natural areas or buffer zones may take place. The buffer and "no-go" areas must be monitored on a weekly basis to clean-up any waste that may have been blown from the construction site. Adequate sanitary facilities and ablutions must be provided for all personnel throughout the project area. Use of these facilities must be enforced (these facilities must be kept clean so that they are a desired alternative to the surrounding vegetation). 				
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	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	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	N	legligible - negative	N	egligible - negative
Comment on significance	Construction activities are likely to generate significant quantities of solid waste that could pollute buffer zones and natural areas. In addition, the high numbers of construction workers present on site will generate a significant amount of human waste, which could pollute the environment.			
Cumulative impacts	The impact	would result in insignificant cumu	lative effects.	

Project Phase	Construction			
Activity		Construction	on Vehicles	
Description of impact	Pollution caused by the operation of vehicles and heavy machinery.			
Mitigable	High	Mitigation exists and will consid	erably reduce	significance of impacts
Potential mitigation	 Construction activities must be confined to clearly demarcated areas so as to prevent unnecessary disturbance the surrounding environment. No vehicles are to park or operate within "no-go" areas. Excavators and all other machinery and vehicles must be checked for oil and fuel leaks daily. No machinery or vehicles with leaks are permitted to work on site. No fuel storage, refuelling, vehicle maintenance or vehicle depots to be allowed near natural spring and dam. Refuelling and fuel storage areas, and areas used for the servicing or parking of vehicles and machinery, must be located on impervious bases and should have bunds around them (sized to contain 110 % of the tank capacity) to contain any possible spills. These areas must not be located within any natural drainage areas or preferential flow paths and must be located outside of buffer zones. The contractors used for the project should have spill kits available to ensure that 			
Assessment	G.1.7	fuel or oil spills are clean-up and Without mitigation		With mitigation
Nature	Negative	<u> </u>	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	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 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	Negligible - negative Negligible - negative			egligible - negative
Comment on	Operation o	of vehicles could result in spillage	s or leaks of h	ydrocarbons (fuel and oil) and
significance	could lead to unnecessary disturbance of natural areas.			
Cumulative impacts	The impact	would result in insignificant cumu	lative effects.	

Project Phase	Construction					
Activity		Disturbance / rem	_			
Description of	Disturbance of topsoil, potential soil erosion and the loss of topsoil					
impact	,					
Mitigable	High Mitigation exists and will considerably reduce the significance of impacts					
Potential mitigation	 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. Organic matter, such as roots and humus/topsoil should be removed from the footprint of structures and stockpiled separately for landscaping purposes. The stockpiling of topsoil for use in rehabilitation is required. 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. Soil disturbance during the removal of alien invasive plants must be minimised as much as possible. 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 					
Assessment	<u> </u>	sed for this purpose if it is without see Without mitigation		th 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 irreplaceabilit y	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	Negli	gible - negative		

Comment on	Clearing areas of the site in preparation for construction will expose bare soil which may
significance	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	Without mitigation this impact could result in potential erosion downhill of the site caused
impacts	by stormwater flow.

Project Phase	Construction					
Activity			of groundwater			
Description of impact	Spillages of diesel, petrol, oil, paints, clears and other harmful chemicals. These substances may potentially percolate into the groundwater and enter the surrounding environment					
Mitigable	High Mitig	ation exists and will considerab	oly reduce the sig	nificance of impacts		
Potential mitigation	 High Mitigation exists and will considerably reduce the significance of impacts Install the sewage and and wastewater infrastructure according to applicable national SANS standards (SANS1200 Part K:Civil Engineering Standard Specifications, SANS10400:The National Building Regulations and Building Standards Act, SANS 1913:Planning, Design, and Construction of Sanitation Systems), DWS Guidelines and adhere to municipal regulations & by-laws. Site to be monitored regularly for contaminant spillages and if detected, contact spillage remediation companies. Separate, tightly cover and monitor toxic substances to prevent spills and possible site contamination. Cover stockpiles of building materials like cement, sand and other powders. Regularly inspect stockpiles for spillages and store away from waterways or drainage areas. Collect any wastewater generated from site activities during construction insettlement tanks then screen, discharge the clean water, and dispose of remaining sludge according to environmental regulations. Install at least three monitoring piezometers into the water table, one upstream 					
Assessment		two downstream of site. 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	Local	Extending across the site and to nearby settlements	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	Probable	It is most likely that the impact will occur	Probable	It is most likely that the impact will occur		
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment		
Reversibility	Partly the impact is reversible but more intense mitigation measures are required		Completely reversible	the impact can be reversed with the implementation of minor mitigation measures.		
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	negative.	plementation of mitigation med				
Cumulative impacts		Since the impact is negligible negative with mitigation, cumulative impacts to groundwater with other projects are not anticipated.				

Project Phase	Construction						
Activity	Noise pollution						
Description of	Noise caused by machinery and staff						
impact							
Mitigable	Low	Mitigation does not exist;	or mitigation	n will slightly reduce the			
		significance of impacts					
Potential			place during	normal working times between			
mitigation		on weekdays.		_			
		may be fitted with silences					
		•	working with	iin a residential area and noise			
		oe kept low.					
Assessment		ut mitigation		With 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 probable	It is most likely that the impact will occur	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	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				
irreplaceability	relevant						
Significance		- negative		legligible - negative			
Comment on	Some extent of nois	se pollution during constru	ction is exped	cted; however, with mitigation			
significance	the impact will be r						
Cumulative	No cumulative imp	No cumulative impacts exist.					
impacts		·					

Project Phase	Construction				
Activity		Visual impact			
Description of impact	also be cleared for loss of the vegetation	Removal of some vegetation will be required for earthworks. Some vegetation would also be cleared for building thereby increasing the visibility of the site and resulting in a loss of the vegetation visual resource. During construction, earthworks would some visual scarring of the landscape.			
Mitigable	Medium	Mitigation exists and will notably reduce significance of impacts			
Potential mitigation	adopted to vegetation, landscape. The necess protect the Appoint a L	ctural Design Guidelines proposed for the development must be mitigate the colours, heights, disturbance areas, maximum footprint, etc, which will all contribute to a smaller visual impact on the ary measures be implemented during the construction phase to natural vegetation, to control the noise, dust and visual intrusion. and scape consultant to recommend and implement the introduction enous landscape plan to protect the existing indigenous vegetation			

	and to prepare a landscape plan for implementation in the private and common					
	areas.					
	Implement external lighting restrictions and guidelines.					
			al Impact Ass	sessment (November 2023).		
Assessment		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 somewhat altered	Very low	Natural and/or social functions and/or processes are slightly altered		
Probability	Probable	It is most likely that the impact will occur	Probable	It is most likely that the impact will occur		
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment		
Reversibility	Partly reversible	the impact is reversible but more intense mitigation measures are required	Partly reversible	the impact is reversible but more intense mitigation measures are required		
Resource irreplaceability	Low	Marginal loss, the resource is not damaged irreparably or is not scarce	Low	Marginal loss, the resource is not damaged irreparably or is not scarce		
Significance	Moderate - negative Minor - negative					
Comment on significance	The significance of impacts is determined through a synthesis of the assessment criteria. The significance of the impacts for the development layout options is low.					
Cumulative impacts	An effect that 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 impacts of the development layout option before mitigation are medium and low after mitigation.					

Project Phase	Construction					
Activity		Employi	ment			
Description of	Empowerment of th	ne local community memb	ers living in th	ne area relating to temporary		
impact		employment o	pportunities			
Mitigable	Medium	Mitigation only exists to e	nsure that the	e positive impact is followed		
		through.				
Potential	 Use existing 	social structures and co	ommunicatio	n channels to ensure social		
mitigation	representation	on.				
	 Use local lab 	our and source local mate	erials as far as	s possible.		
Assessment	Withou	ıt 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	Negligib	ole - 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 upliftment for the local community.				

Impacts foreseen during the Operational Phase for the Preferred Alternative (60 Residential Stands):

Project Phase	Operational					
Activity	Visual / Sense of place					
Description of	The development would result in a small change in visual character from a landscape					
impact	covered in veget	ation and without buildin	gs to a low-	density well landscaped built		
	landscape.					
Mitigable	Medium	Mitigation exists and will	notably redu	ce significance of impacts		
Potential	1	by-laws need to be adhere				
mitigation			open space	areas with suitable indigenous		
	vegetation					
		removal and follow-up op				
		Architectural Design Guide				
		land will be densely veget	•	nent and the Keurboom Road.		
	· ·			sessment (November 2023).		
Assessment		ut mitigation		With mitigation		
Nature	Negative	or mingunon	Negative	Willi Itilligation		
Duration	Short term	Impact will last	Short term	Impact will last between 1		
Dordiion		between 1 and 5 years	311011 101111	and 5 years		
Extent	Local	Extending across the	Local	Extending across the site		
	2000.	site and to nearby	2000	and to nearby settlements		
		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	Probable	It is most likely that the	Probable	It is most likely that the		
		impact will occur		impact will occur		
Confidence	High	Substantive supportive	High	Substantive supportive data		
		data exists to verify the		exists to verify the		
Reversibility	Partly reversible	assessment the impact is reversible	Partly	assessment the impact is reversible but		
Reveisibility	Fairly reversible	but more intense	reversible	more intense mitigation		
		mitigation measures	TOVCISIOIC	measures are required		
		are required		Theaseres are required		
Resource	Low	Marginal loss, the	Low	Marginal loss, the resource is		
irreplaceability		resource is not		not damaged irreparably or		
,		damaged irreparably		is not scarce		
		or is not scarce				
Significance	Moder	ate - negative		Minor - negative		
Comment on	The significance of	f impacts is determined th	rough a synth	nesis of the assessment criteria.		
significance	The significance of	the impacts for the devel	opment layoı	ut options is low.		
				ture allows for it to blend in very		
		-		ne landscape. The alternative 2		
	development layout option provides a slight advantage over the preferred and altenative 1 development layout options due to its lower density and more open space for landscaping to screen views from the road. But with the implementation of					
	appropriate mitigation measures the preferred and alternative 1 development layouts can also be screened effectively from the road.					
Cumulative				ecome significant if added to		
impacts				activities associated with the		
				e development layout option		
	1	are medium and low after	•			

Project Phase		Opera	tional			
Activity		Inputs of stormwater from ro	ofs and roads	into the pond		
Description of impact	Reduced physico-chemical water quality including the introduction of litter.					
Mitigable	High Mitigation exists and will notably reduce significance of impacts					
Potential	No st	ormwater infrastructure to be dir	ected toward	s the pond.		
mitigation	Routi	ne maintenance inspections to	clear windblo	ow / discarded litter from the		
		I and spring.				
		nwater should be diverted to det				
		arious SDP layouts and are consis	stent with the	SUDS approach to stormwater		
		agement.				
Assessment		Without mitigation		With mitigation		
Nature	Negative	I	Low negative			
Duration	Short term	Impact will last between 1 and 2 years.	Brief	Impact will not last longer than 1 year.		
Extent	Limited	Limited to the site and its	Very	Limited to the site and its		
		immediate surroundings	limited	immediate surroundings		
Intensity	Low	Natural and/or social	Negligible	Natural and/ or social		
		functions and/or processes		functions and/ or processes		
		are somewhat altered		are negligibly altered		
Probability	Possible	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		
Commence	7410010111	common sense and general	Mediom	common sense and general		
		knowledge		knowledge		
Reversibility	Completely	The impact can be reversed	Completely	The impact can be reversed		
,	reversible '	with the implementation of	reversible '	with the implementation of		
		minor mitigation measures.		minor mitigation measures.		
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 Negligible - negative					
Comment on		ral spring and pond are present				
significance	can be adequately protected from the development by implementing the 10m buffer					
	during the construction and operational phases as indicated in this report. The presence					
	of this feature is not sufficient to increase the sensitivity of the site to Very High, and it has					
		ed from the development area.	No stormwate	er snould be put into this pond		
Cumaulativa		is of high quality. vould result in insignificant cumu	lativa effect			
Cumulative	ine impact v	vouia resuit in insignificant cumu	ialive effects.			
impacts						

Project Phase			Operational
Activity	Lands	caping	, gardening and maintenance extending into the pond and buffer area
Description of	Transform	mation	of indigenous vegetation through planting, removal and / or dumping.
impact			
Mitigable	High	N	Aitigation exists and will notably reduce significance of impacts
Potential	⋄ [andsco	aping and gardening staff must not undertake any clearing of vegetation
mitigation	į i	nside of	f the 10m buffer.

- ❖ A bird hide in the buffer to spot wildlife would be acceptable, but no additional recreational activities. The point is to create a quiet habitat with suitable vegetation cover for continued use by animals, birds etc.
- Indigenous plants found in adjacent thickets may be planted around the pond. Only indigenous plants found in the immediate surrounding area may be planted.
- ❖ A list of recommended wetland plants for that can be used to improve vegetation cover of muddy areas and marginal areas of the pond is provided in this report.
- Do not place any fish into the pond as only alien invasive fish to the area would survive and could be transferred to other waterbodies on the feet of animals or birds.
- ❖ The only plants that should be removed from the area are listed alien invasive species.

	3000	03.				
Assessment		Without mitigation	With mitigation			
Nature	Negative		Low negative	9		
Duration	Short term	Impact will last between 1 and 2 years.	Brief	Impact will not last longer than 1 year.		
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	Negligible	Natural and/ or social functions and/ or processes are negligibly altered		
Probability	Possible	Has occurred here or elsewhere and could therefore 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	Completely reversible	The impact can be reversed with the implementation of minor mitigation measures.	Completely reversible	The impact can be reversed with the implementation of minor mitigation measures.		
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 Negligible - negative					
Comment on significance	The purpose of the pond and spring is to provide a sustained water source for wildlife in the green corridor.					
Cumulative impacts	The impact v	The impact would result in insignificant cumulative effects.				

Project Phase		Operation			
Activity		Stormwater Management			
Description of		Accelerated erosion / pollut	ion into sub-surface	water.	
impact					
Mitigable	High Mitigo	ation exists and will considerably re	educe the significar	nce of impacts	
Potential	The st	The storm water drainage system must be adhered to, and the system should lead			
mitigation	runoff water away from sensitive areas to prevent soil erosion.				
	Use rainwater collection tanks to serve as a retention vessel in downpours.				
	Driveways can be constructed from grass blocks to allow for effective retarding of				
	surface flow and facilitate percolation.				
Assessment	Without mitigation With mitigation			n mitigation	
Nature	Negative		Low Negative		
Duration	Short term	Impact will last between 1	Brief	Impact will not last	
		and 5 years		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		linor – negative	·	ible - negative
Comment on significance	The development portion of the site is flat with no gradient along its southern boundary and has no defined drainage discharge points. The existing flat and permeable conditions allow for natural infiltration.			
Cumulative impacts	Without mitigation stormwater flow	on this impact could result in po	otential erosion on	the site caused by

Project Phase		Opero	ıtion			
Activity		Stormwater Runoff				
Description of impact	Al	teration of surface flows caused	by increased stor	mwater runoff.		
Mitigable	High Mitigat	ion exists and will considerably re	educe the signific	ance of impacts		
Potential mitigation	 Stormwater from erven must be attenuated on site as far as possible. Stormwater from access roads must be attenuated onsite (prior to any discharge into retention ponds). The runoff velocity of stormwater must be reduced with energy dissipaters prior to discharge into retention ponds. Stormwater management should encourage infiltration of water into the soil profile and other on site attenuation (i.e. using grass pavers etc.). The natural spring and small dam must be protected by a 10 m buffer throughout the operational phase. No stormwater should be put into this dam as the water is of high quality. 					
Assessment		Without mitigation		ith mitigation		
Nature	Negative		Low Negative			
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Permanent	Impact may be permanent, or in excess of 20 years		
Extent	Very limited	Limited to specific isolated parts of the site	Very limited	Limited to specific isolated parts of the site		
Intensity	Medium	Natural and/or social functions and/or processes are notably altered	Low	Natural and/or social functions and/or		

				processes are
				somewhat 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	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		Minor - negative	Negligi	ble - negative
Comment on significance	generate incre foundations for dam. The dam dam should be	ent will result in an increase in the ased volumes of stormwater run houses may increase sub-surface water is of high quality, and post minimised. The property of the property is a sub-surface water is of high quality, and post minimised.	off. Hardened surface flows towards the	ace and establishment of e natural spring and small water runoff entering the
Cumulative impacts	<u> </u>	ation this impact could result	in the water qua	ality of the dam being

Project Phase	Ope	erational				
Activity		er Contamination				
Description of impact	 Leakage from underground sewage holding tank and associated pipework. Leaks and leachate from the wastewater treatment plant. Improperly treated effluent used for irrigation. WWTP failure. 					
Mitigable		could percolate into the groundwater. ly reduce the significance of impacts				
Potential mitigation	 Ensure the WWTP comply with SANS Specifications, NWA, Water Quality Design, and Construction of Sanitating Design and Operational Guidelines All areas where potential leachate in Regularly service the WWTP and inspectors. Ensure emergency procedures are in occur. Set up a comprehensive monitoring Incorporate monitoring network as in into operational phase monitoring Install shallow aquifer piezometers in regularly for any leakages. Should a leak be detected or the median baseline Phase 1 Contamination Assertations. 	1200 Part K: Civil Engineering Standard Guidelines (DWAF), SANS1913: Planning, on Systems, Wastewater Treatment Plant				
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	Local	Extending across the site	Limited	Limited to the site and its
		and to nearby settlements		immediate surroundings
Intensity	Low	Natural and/or social	Negligible	Natural and/ or social
		functions and/or processes		functions and/ or processes
		are somewhat altered		are negligibly altered
Probability	Probable	It is most likely that the	Probable	It is most likely that the
		impact will occur		impact will occur
Confidence	High	Substantive supportive data	High	Substantive supportive data
		exists to verify the		exists to verify the
		assessment		assessment
Reversibility	Partly	the impact is reversible but	Completely	the impact can be reversed
	reversible	more intense mitigation	reversible	with the implementation of
		measures are required		minor mitigation measures.
Resource	Low	The resource is not	Low	The resource is not
irreplaceability		damaged irreparably or is		damaged irreparably or is
		not scarce		not scarce
Significance		Minor - negative	•	gligible - negative
Comment on		plementation of mitigation med		quence becomes negligible
significance		nificance, negligible - negative.		
Cumulative		pact is negligible negative with		ulative impacts to
impacts	groundwate	er with other projects are not ar	nticipated.	

Project Phase		Ор	erational			
Activity	Groundwater Recharge and Flooding					
Description of impact		Infrastructure limiting groundwater recharge and/or flooding risk.				
Mitigable	High Mitig	High Mitigation exists and will considerably reduce the significance of impacts				
Potential mitigation	 Permeable pavement and green infrastructure (limit coverage of surface area by infrastructure as far as possible. Rainwater Harvesting Sustainable Urban Drainage Systems (SUDS) Retention and Detention Basins Design stormwater drainage systems to handle increased rainfall events by incorporating overflow pathways, sump pumps, and flow control structures. Installation of piezometers to track groundwater level. Inspect and maintain drainage systems, stormwater infrastructure, and mitigation features. The site levels must be designed such that the floor levels will all be set higher than the level of the Road 394, the existing southern flood containment level. 					
Assessment		Without mitigation		With mitigation		
Nature	Negative		Low 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	Very Limited	Extending only as far as the development site area		
Intensity	Low Natural and/or social Negligible Natural and/or social functions and/or processes are somewhat altered are negligibly altered					
Probability	Probable	It is most likely that the impact will occur	Probable	It is most likely that the impact will occur		
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment		

Reversibility	Partly	the impact is reversible but	Completely	the impact can be reversed
	reversible	more intense mitigation	reversible	with the implementation of
		measures are required		minor mitigation measures.
Resource	Low	The resource is not	Low	The resource is not
irreplaceability		damaged irreparably or is		damaged irreparably or is
		not scarce		not scarce
Significance	Negligible - negative Negligible - negative			
Comment on	After the implementation of mitigation measures, the consequence becomes negligible,			
significance	and the significance remains as negligible - negative.			
Cumulative	Since the im	pact is negligible negative with	n mitigation, cumu	ulative impacts to
impacts	groundwate	er with other projects are not ar	nticipated.	

Project Phase		Ope	ation		
Activity		Impacts on ec		rs	
Description of	Effects of t	he development and activity or			
impact	support ecosystems.				
Mitigable	Medium Mitigation will reduce the significance of impacts				
Potential	* Acc	ess to forested areas during co	onstruction m	oust not be permitted by any	
mitigation	cons	struction personnel. These areas i	must be fence	ed off and no access allowed.	
		npile and implement an alien r			
		ities and areas and provides a p			
		ertake regular monitoring to det		sions early so that they can be	
		rolled, as per the Alien Manager			
		ict access to forested areas			
		ogical management plan must b			
	impo	This should contain measures fo	r protecting in	ne lorest from unave france and	
Assessment	ППРС	Without mitigation		With mitigation	
Nature	Negative	Williou Hilligation	Negative	Will minganon	
Duration	Long Term	Impact will last more than 15	Long Term	Impact will last more than 15	
Dordiion	Long rom	years	Long form	years	
Extent	Limited	Limited to the site and its	Very	Limited to the site and its	
		immediate surroundings	limited	immediate surroundings	
Intensity	Low	Natural and/or social	Very low	Natural and/or social	
		functions and/or processes	,	functions and/or processes	
		are somewhat altered		are slightly altered	
Probability	Possible	Has occurred here or	Possible	Has occurred here or	
		elsewhere and could		elsewhere and could	
		therefore occur		therefore occur	
Confidence	High	Substantive supportive data	High	Substantive supportive data	
		exists to verify the assessment		exists to verify the	
				assessment	
Reversibility	Irreversible	the impact is irreversible, and	Irreversible	the impact is irreversible,	
		no mitigation measures exist		and no mitigation measures	
Resource	⊔iah	Irronarable damage and is	⊔iah	exist Irreparable damage and is	
irreplaceability	High	Irreparable damage and is not represented elsewhere	High	not represented elsewhere	
Significance		Minor - negative	N		
Comment on	Minor - negative The most important ecological drivers on site that may be affected by the proposed				
significance		. •	•	, , ,	
o.gouou	development are related to maintenance of the forest ecosystem. The forest margins are important for maintaining forest integrity, and the forest canopy needs to be maintained				
	for the health of the forest ecosystem. No development is proposed within the forest, and				
		ary forest on the southern margin		•	
Cumulative		would result in insignificant cumu			
impacts	·				

Project Phase	Operation				
Activity	Impacts on ecological corridors				
Description of	Cut-off of no	atural dispersal and foraging mo	vement by ar	nimals, impacts on suitable link	
impact	or important corridor, fragmentation of ecological infrastructure				
Mitigable	Low	Mitigation will slightly reduce th	ne significance	e of impacts	
Potential	Fenc	ing should not extend into the	corridor on the	e neighbouring boundaries as	
mitigation	the aim is to have an inter-connected corridor that extends across properties,				
	shoul	d development occur in adjace	ent areas.		
	❖ Use of	clearVu fencing to separate the	e corridor fron	n the development area. The	
	spring	g must be incorporated into th	ne corridor. Th	ne fence is to keep domestic	
	anim	als (cats and dogs, etc) out of the	ne wildlife corr	ridor.	
	❖ Fenci	ing should not extend into the	corridor on the	e neighbouring boundaries as	
	the c	aim is to have an inter-connect	ted corridor th	nat extends across properties,	
	shoul	d development occur in adjace	ent areas.		
	Provid	de open-space corridors throug	h the develop	ment.	
Assessment		Without mitigation		With mitigation	
Nature	Negative		Negative		
Duration	Permanent	Impact may be permanent,	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	Limited	Limited to the site and its	
	immediate surroundings immediate surrou		immediate surroundings		
Intensity	Low	Natural and/or social	Negligible	Natural and/ or social	
-	functions and/or processes functions and/ or process				
	are somewhat altered are negligibly altered				
Probability	Definite	There are sound scientific	Definite	There are sound scientific	
	reasons to expect that the reasons to expect that the				
		impact will occur		impact will occur	
Confidence	High	Substantive supportive data	High	Substantive supportive data	
		exists to verify the assessment		exists to verify the	
				assessment	
Reversibility	High	Irreparable damage and is	High	Irreparable damage and is	
		not represented elsewhere		not represented elsewhere	
Resource	Low	Marginal loss, the resource is	Low	The resource is not	
irreplaceability		not damaged irreparably or		damaged irreparably or is	
		is not scarce		not scarce	
Significance		Minor - negative	N	egligible - negative	
Comment on	The vegetati	ion type (Garden Route Shale	Fynbos) is liste	ed as Endangered. All upland	
significance	areas of the	site on the steep slopes are cove	ered with fores	t that matches the description	
	for Goukamr	ma /Mesic Dune Thicket (Cowlin	g et al. 2023),	which is not threatened, but is	
	separately lis	sted as protected under the No	ational Forests	Act. These forested areas are	
	completely excluded from the proposed development (all options) and are not directly				
	affected.				
		ed development layout makes			
		also incorporated portions of the			
		ace system within the developm		·	
Cumulative	The impact r	may result in cumulative effects	through the la	ndscape.	
impacts					

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

Potential mitigation	 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. Rehabilitation of disturbed areas, as well as previously invaded areas, should promote establishment of site-appropriate indigenous species. A suitable planting list of trees and shrubs must be compiled and incorporated into the Landscape Plan. An Alien Control Plan should be compiled to systematically remove and control alien plant species. Follow-up operations must be done. Minimise disturbance to the natural vegetation using low impact manual labour techniques. Reduce fire hazard on site 				
Assessment	Without mitigation With mit		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	Very high	Natural and/ or social functions and/ or processes are majorly 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	

		on common sense and general knowledge		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	Not relevant		Not	
irreplaceability			relevant	
Significance	Moderate - negative Moderate - positive			Moderate - positive
Significance	Modeld	ne - neganve		Moderale - positive
Comment on				uld take place on site. This will
	An ongoing alien i	nvasive management pro	gramme sho	
Comment on	An ongoing alien in protect riparian hab	nvasive management pro pitats downslope from degr	gramme show radation and	uld take place on site. This will
Comment on	An ongoing alien in protect riparian hab contribution to main	nvasive management pro pitats downslope from degr ntaining and protecting bio	gramme show radation and sodiversity on si	uld take place on site. This will could potentially be the biggest
Comment on significance	An ongoing alien in protect riparian hab contribution to main Without mitigation to	nvasive management pro pitats downslope from degr ntaining and protecting bio	gramme show radation and odiversity on si	uld take place on site. This will could potentially be the biggest te and in surrounding areas. design guidelines enforced by

Determination is based

Project Phase	Operation
Activity	Formal gardens
Description of	Habitat loss for terrestrial wildlife, fragmentation of ecological corridor
impact	
Mitigable	Low Mitigation will slightly reduce the significance of impacts
Potential	Areas that are not required for development purposes should remain natural with
mitigation	indigenous vegetation.
	All alien invasive plants must be removed from the site on an on-going basis.

Confidence

Medium

result elsewhere

Determination is based on

Medium

	Investing landowners within the proposed development should be encouraged to				
	 avoid planting exotic plants in favour of locally indigenous plants. Landscaping must be done with locally occurring indigenous vegetation. 				
Assessment		g must be done with locall u t mitigation			
Nature	Negative	or minganon	Positive	With mitigation	
Duration	Brief	Impact will not last longer than 1 year	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 specific isolated parts of the site	
Intensity	Negligible	Natural and/ or social functions and/ or processes are negligibly altered	Very low	Natural and/ or social functions and/ or processes are slightly altered	
Probability	Highly unlikely / None	Expected never to happen	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	Medium	The affected environment will only recover from the impact with significant intervention	Not relevant		
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Not relevant		
Significance	Negligil	ole - negative		Minor - positive	
Comment on significance	With mitigation the impact is likely to have more beneficial impact to retaining natural biodiversity, than without mitigation.				
Cumulative impacts	Without mitigation this impact could result in the spread of alien invasive plants and the loss of indigenous vegetation.				

Project Phase	Operational Control Co				
Activity	Package Plant Maintenance				
Description of	Impacts associated with the maintenance of the sewage package plant and potential				
impact	downtime or failures.				
Mitigable	High Mitigation exists and will considerably reduce the significance of impacts				
Potential	Assign an Estate maintenance manager responsible for daily inspections of the				
mitigation	plant.				
	Ensure the maintenance manager is trained specifically in plant operations and maintenance procedures.				
	 Install screening systems to remove non-biodegradable materials and prevent clogging or system damage. 				
	Dispose of screened non-biodegradable waste via incineration at a recognized waste disposal site.				
	Install an emergency alarm system that activates if effluent levels rise in the emergency storage component.				
	Design the plant with a 48-hour emergency effluent storage period to accommodate unexpected downtime or failures.				
	Have a contract or arrangement with effluent removal tanker services for extended maintenance events.				
	 Conduct monthly testing of effluent to ensure compliance with quality standards. 				

	Power the plant using a Solar/Eskom battery system with a backup generator to mitigate Eskom power outages.			
Assessment		ithout mitigation	With mitigation	
Nature	Negative		Low Negative	3
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	Very limited	Limited to specific isolated parts of the site
Intensity	Medium	Natural and/or social functions and/or processes are notably altered	Low	Natural and/or social functions and/or processes are slightly altered
Probability	Possible	Has occurred here or elsewhere and could therefore occur	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	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	Negligible	No loss of resources	Negligible	No loss of resources
Significance		derate - negative		gligible - negative
Comment on significance	The implementation of the proposed mitigation measures will significantly reduce the likelihood and severity of operational failures, environmental contamination, and service disruptions associated with the sewage package plant.			
Cumulative impacts	Without mitiga	tion this impact could result in	the groundwate	er quality being compromised.

Impacts foreseen during the Decommissioning Phase (60 Residential Stands):

Project Phase	Decommissioning					
Activity			ige Plant			
Description of impact	Decommissioning of the package plant resulting in potential pollution of surface and groundwater sources, soil contamination, and health and safety risks.					
Mitigable		ion exists and will considerably				
Potential	Empty	and clean tanks before disma	ıntling.			
mitigation	ConduProvideFollowPreparEnsurepublic	 Remove all sludge and residue with certified disposal contractors. Conduct soil testing before and after decommissioning. Provide PPE and training for workers. Follow safe dismantling procedures. Prepare and follow a Health and Safety Plan. 				
Assessment		lithout mitigation		With mitigation		
Nature	Negative		Low Negative			
Duration	Short term	Impact will last between 1 and 2 years	Brief	Impact will not last longer than 1 year		
Extent	Local	Extending across the site and to nearby settlements	Very limited	Limited to specific isolated parts of the site		
Intensity	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	Possible	Has occurred here or elsewhere and could therefore occur	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	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	Negligible	No loss of resources	Negligible	No loss of resources		
Significance		Minor - negative		egligible - negative		
Comment on significance	The decommissioning requirements will only comprise the emptying and removal of the above ground containerized bio reactor plant. Sludge is recycled within the plant system and there will be no sludge accumulation requiring removal on decommissioning.					
Cumulative impacts	Without mitigo	Without mitigation this impact could result in the groundwater quality being compromised.				

Impacts foreseen during the Construction Phase for Alternative 1 (73 Residential stands):

Project Phase		Construction			
Activity	Loss of habitat within CBAs				
Description of impact	Encroachment into and loss of CBA1 and CBA2 areas due construction.				
Mitigable	Medium	Mitigation exists and will notab	ly reduce sign	ificance of impacts	
Potential mitigation	• Some	form of offset or conservation s	ervitude can b	pe considered.	
Assessment		Without mitigation		With mitigation	
Nature	Negative		Low negative	е	
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	Limited	Limited to the site and its immediate surroundings	
Intensity	Medium	Natural and/or social functions and/or processes are notably altered	Low	Natural and/or social functions and/or processes are somewhat altered	
Probability	Definite	There are sound scientific reasons to expect that the impact will occur	Definite	There are sound scientific reasons to expect that the impact will occur	
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment	
Reversibility	Completely reversible	the impact can be reversed with the implementation of minor mitigation measures.	Completely reversible	the impact can be reversed with the implementation of minor mitigation measures.	
Resource irreplaceability	Medium	the resource is damaged irreparably but is represented elsewhere	Medium	the resource is damaged irreparably but is represented elsewhere	
Significance		Minor - negative		Minor - negative	
Comment on significance	The site occurs entirely within CBA1 and CBA2 areas. The secondary vegetation ("pastures") in the southern part of the site does not have the properties consistent with protecting biodiversity patterns, but remaining areas are ecologically functional. The vegetation on site (within the proposed development footprint) is in relatively poor condition, and consists either of lawns or secondary vegetation with a species composition that is not representative of the natural habitat				
Cumulative impacts	The impact impacts is lov	would result in insignificant cur w. The CBAs are designated for his does not occur within these c	mulative effection	cts as the significance of the n of listed Garden Route shale	

Project Phase		Construction				
Activity	Cleara	Clearance of vegetation for the construction of the dwelling and associated				
		infrastructure				
Description of	Loss of sei	nsitive vegetation, habitat loss for terrestrial wildlife, mortalities to various				
impact	species una	species unable to evade the disturbance, loss of viable propagules, fragmentation of				
		ecological infrastructure				
Mitigable	Medium	Medium Mitigation exists and will notably reduce significance of impacts				
Potential	 Where 	ever there are sections of undisturbed natural habitat within the				
mitigation	devel	opment area, they should not be impacted by the building activities and				

should be conserved as small islands of natural resources for the small wildlife of the area.

- the removal and translocation of protected plants if found should be undertaken prior to construction clearing activities. A permit is required prior to removal.
- 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.
- Access by heavy machinery should be limited on the site.
- Only areas necessary for the development footprint should be cleared and the remainder of the property should be left natural.
- Laydown areas for construction materials must be contained within the clearing footprint of the proposed development.
- A 10-meter buffer zone must be retained along the base of the slope to protect the forest margin.

	me rorest margin.				
Assessment		Without mitigation		With mitigation	
Nature	Negative		Low negative	e	
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	High	Natural and/ or social functions and/ or processes are significantly altered	Low	Natural and/or social functions and/or processes are somewhat 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	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	High	The resource is damaged irreparably but is represented elsewhere	Low	The resource is not damaged irreparably or is not scarce	
Significance		Minor - negative	N	egligible - negative	
Comment on significance	The forested area to the north of the development is excluded from the proposed development and will not be directly affected.				
Cumulative impacts	The impact	would result in insignificant cumu	ulative effects		

Project Phase	Construction			
Activity		Loss of secondary vegetation within endangered ecosystem		
Description of		bitat on site (within the proposed development footprint), modification of		
impact		processes, spillover effects into surrounding areas due mostly to secondary the as boundary disturbance and alien invasive species spread.		
Mitigable	Medium	Mitigation exists and will notably reduce significance of impacts		
Potential mitigation	con: Con prior Und con	ess to forested areas during construction must not be permitted by any struction personnel. These areas must be fenced off and no access allowed. Apile and implement an alien management plan, which highlights control rities and areas and provides a programme for long-term control. Pertake regular monitoring to detect alien invasions early so that they can be trolled, as per the Alien Management Plan. Cabilitation of disturbed areas, as well as previously invaded areas, should mote establishment of site-appropriate indigenous species.		

Assessment		Without mitigation		With mitigation	
Nature	Negative		Low negative	e	
Duration	Permanent	Impact may be permanent,	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	Very	Limited to the site and its	
		immediate surroundings	limited	immediate surroundings	
Intensity	Medium	Natural and/or social	Low	Natural and/or social	
		functions and/or processes		functions and/or processes	
		are notably altered		are somewhat altered	
Probability	Certain /	There are sound scientific	Certain /	There are sound scientific	
	Definite	reasons to expect that the	Definite	reasons to expect that the	
		impact will definitely occur		impact will definitely occur	
Confidence	High	Substantive supportive data	High	Substantive supportive data	
		exists to verify the assessment		exists to verify the	
		T		assessment	
Reversibility	Low	The affected environment will	Medium	The affected environment	
		not be able to recover from		will only recover from the	
		the impact - permanently		impact with significant	
D	1	modified	1	intervention	
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	N	egligible - negative	
Significance Comment on	The week at				
significance	The vegetation type (Garden Route Shale Fynbos) is listed as Endangered. All upland areas of the site on the steep slopes are covered with forest that matches the description for Southern Afrotemperate Forest, which is not threatened, but is separately listed as protected under the National Forests Act. The forest areas on site fall within a CBA1. These forested areas are completely excluded from the proposed development (both options) and are not directly affected.				
Cumulative impacts	The only remaining non-forest vegetation on site is considered to be secondary. However, on the basis that no legal soil disturbance has occurred during the preceding 10 years, it is legally considered to be natural vegetation that is within an Endangered ecosystem. It is, however, not representative of this vegetation unit and, being secondary, is not considered to be irreplaceable. The impact would result in insignificant cumulative effects				

Project Phase		Construction				
Activity		Loss of individuals of protected tree species				
Description of	Loss of habit	at on site (within the proposed d	evelopment fo	ootprint), disturbance or loss of		
impact	protected tre	ees.				
Mitigable	Medium	Mitigation exists and will notab	ly reduce sign	ificance of impacts		
Potential	Retai	n existing large trees within prop	osed develop	ment.		
mitigation	to the Plant These prop	If any trees need to be removed or pruned then a permit is required, according to the National Forests Act.				
Assessment		Without mitigation With mitigation				
Nature	Negative		Low negative			
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Long Term	Impact will last between 16 and 30 years		
Extent	Very limited	Limited to the site and its immediate surroundings	Very limited	Limited to the site and its immediate surroundings		

Intensity	Very high	Natural and/ or social functions and/ or processes are majorly altered	Low	Natural and/or social functions and/or processes are somewhat altered
Probability	Probable	Has occurred here or elsewhere and could therefore 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	Partly reversible	The impact is reversible but more intense mitigation measures are required	Partly reversible	The impact is reversible but more intense mitigation measures are required
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 ₀	egligible - negative
Comment on significance	The tree species affected is <i>Sideroxylon inerme</i> , protected under the National Forests Act. A total of 4 individuals were seen on site, all of them relatively large individuals. The species is widespread but is a key and dominant component of coastal forests in the Garden Route.			
Cumulative impacts	The impact v	would result in insignificant cumu	lative effects	

Project Phase		Construction				
Activity	Loss of habitat for listed threatened animal species					
Description of impact		Loss of habitat for threatened plant and animal species, spillover effects into surrounding areas due mostly to secondary impacts such as dust deposition and alien invasive species				
Mitigable	Medium	Mitigation exists and will notab	ly reduce sign	ificance of impacts		
Potential mitigation	 Reho marg good Fores biodi must retain steps spec mesic An o 	ect natural forest vegetation adjubilitate and improve the small plant of the small plant, step of the small plant of the small	I dam on site ain ponds in for ing potentially eeply-sloping and are designed development to protect the these areaspidatus and	e, including introducing pond prested areas. This will provide a Afrixalus knysnae. Part of the site, have high mated as sensitive. These areas ment. A buffer zone should be the forest margin. For example, as and encourage growth of Sideroxylon inerme, that are		
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	Very high	Natural and/ or social functions and/ or processes are majorly altered	Low	Natural and/or social functions and/or processes are somewhat altered		

Probability	Probable	Has occurred here or elsewhere and could therefore 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	Partly reversible	The impact is reversible but more intense mitigation measures are required	Partly reversible	The impact is reversible but more intense mitigation measures are required
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	No	egligible - negative
Comment on significance	speci footp • The sp	 There is habitat on site that is suspected habitat for threatened plant and animal species. This is the forest habitat, which is outside the proposed development footprint and will not be affected by the proposed development. The species that could potentially occur within this habitat are as follows: Knysna Warbler (Vulnerable) has a moderate probability of occurring in forest margin areas. Crowned Eagle (Near Threatened) - the forests on site may constitute part of the general foraging range but it is unlikely that they are resident on site, or are dependent on it. 		
Cumulative		l impact affects a negligible pr		e overall habitat available for
impacts	these species and will not directly affect any individuals.			

Project Phase		Construction			
Activity		Earthworks and vegetation cle	aring for const	ruction activities	
Description of	Sedimentati	on of the pond resulting in po	or water qual	ity. Destruction of vegetation	
impact	around the	pond and spring.			
Mitigable	High	Mitigation exists and will notab	ly reduce sign	ificance of impacts	
Potential	Pre-c	construction erect temporary fe	encing along t	the entire green corridor and	
mitigation	oper	n space to protect the pond o	as well as the	corridor from impact during	
	cons	truction.			
		signage to the fence indicating			
		nductions for all staff must ensure	contractors a	nd works area aware they may	
	not e	not enter the pond and spring area.			
Assessment		Without mitigation		With mitigation	
Nature	Negative		Low negative		
Duration	Short term	Impact will last between 1	Brief	Impact will not last longer	
		and 2 years.		than 1 year.	
Extent	Limited	Limited to the site and its	Very	Limited to the site and its	
		immediate surroundings	limited	immediate surroundings	
Intensity	Low	Natural and/or social	Negligible	Natural and/ or social	
		functions and/or processes		functions and/ or processes	
		are somewhat altered		are negligibly altered	
Probability	Possible	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 common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	Completely reversible	The impact can be reversed with the implementation of minor mitigation measures.	Completely reversible	The impact can be reversed with the implementation of minor mitigation measures.
Resource	Low	The resource is not damaged	Low	The resource is not
irreplaceability		irreparably or is not scarce		damaged irreparably or is
				mot source
				not scarce
Significance		Minor - negative		egligible - negative
Significance Comment on significance	can be aded during the co of this feature been exclud	Minor - negative ral spring and pond are present quately protected from the dev ponstruction and operational pha e is not sufficient to increase the ed from the development area is of high quality.	on the site, the velopment by uses as indicat sensitivity of the	egligible - negative ey are very small in extent and implementing the 10m buffer ed in this report. The presence he site to Very High, and it has

Construction				
	Waste Pollution			
Pollutio	on of buffer zones and natural are	eas caused by	waste generated by the	
		•		
High		•	·	
	•	•	• • •	
		ng of differen	nt waste materials should be	
		t be collected	and disposed of at a suitable	
	•			
		within natural	areas or butter zones may take	
		no monitored	on a wookly basis to cloan up	
	•			
	•	,		
	Without mitigation		With mitigation	
Negative		Low negative	Э	
Short term	Impact will last between 1	Brief	Impact will not last longer	
	and 5 years		than 1 year	
		,	Limited to the site and its	
			immediate surroundings	
Low	· ·	Very low	Natural and/or social	
	· ·		functions and/or processes	
			are slightly altered	
Likely	The impact may occur		Conceivable, but only in	
		Impropable	extreme circumstances,	
			and/or might occur for this project although this has	
			rarely been known to result	
			elsewhere	
High	Substantive supportive data	High	Substantive supportive data	
la		19		
	exists to verify the assessment		exists to verify the	
	High All c man supp All c wast No c place The any Ade through facil surro	Pollution of buffer zones and natural are construction. High Mitigation exists and will consider. All construction waste generated on managed. Separation and recycling supported. All construction waste materials must waste facility. No dumping of construction material place. The buffer and "no-go" areas must be any waste that may have been blow. Adequate sanitary facilities and abe throughout the project area. Use of facilities must be kept clean so the surrounding vegetation). Without mitigation Negative Short term Impact will last between 1 and 5 years Very Limited to the site and its immediate surroundings Low Natural and/or social functions and/or processes are somewhat altered Likely The impact may occur	Pollution of buffer zones and natural areas caused by construction process. High Mitigation exists and will considerably reduced an All construction waste generated on-site during comanaged. Separation and recycling of different supported. • All construction waste materials must be collected waste facility. • No dumping of construction material within natural place. • The buffer and "no-go" areas must be monitored any waste that may have been blown from the complex of throughout the project area. Use of these facilities must be kept clean so that they are surrounding vegetation). Without mitigation Negative Short term Impact will last between 1 and 5 years Very Limited to the site and its limited Low Natural and/or social functions and/or processes are somewhat altered Likely The impact may occur High Substantive supportive data High	

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	Negligible - negative Negligible - negative			egligible - negative
Comment on	Construction	Construction activities are likely to generate significant quantities of solid waste that could		
significance	pollute buffer zones and natural areas. In addition, the high numbers of construction workers present on site will generate a significant amount of human waste, which could pollute the environment.			
Cumulative impacts	The impact	would result in insignificant cumu	lative effects.	

Construction

110,00111100	Constitution				
Activity	Construction Vehicles				
Description of	Pollution caused by the operation of vehicles and heavy machinery.				
impact					
Mitigable	High	Mitigation exists and will consic			
Potential		struction activities must be con		•	
mitigation		ent unnecessary disturbance the	•		
		ehicles are to park or operate w			
		avators and all other machinery o			
		s daily. No machinery or vehicles			
		uel storage, refuelling, vehicle m	aintenance or	vehicle depots to be allowed	
		r natural spring and dam.			
		elling and fuel storage areas, a			
		cles and machinery, must be loo			
		ds around them (sized to contain			
		ible spills. These areas must not b referential flow paths and must b		· · · · · · · · · · · · · · · · · · ·	
		contractors used for the project			
		fuel or oil spills are clean-up and			
Assessment	dity	Without mitigation	alsearaca col	With mitigation	
Nature	Negative	·····iganon	Low negative		
Duration	Short term	Impact will last between 1	Brief	Impact will not last longer	
2010		and 5 years	5.101	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	
·		functions and/or processes	,	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	• • • • • • • • • • • • • • • • • • • •		
			assessment ,		
Reversibility			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	
			1	not scarce	

Project Phase

Significance	Negligible - negative	Negligible - negative	
Comment on	Operation of vehicles could result in spillages or leaks of hydrocarbons (fuel and oil) and		
significance	could lead to unnecessary disturbance of natural areas.		
Cumulative	The impact would result in insignificant cumulative effects.		
impacts			

Construction

Activity	Disturbance / removal of topsoil					
Description of		Disturbance of topsoil, potential sc	oil erosion and the l	oss of topsoil		
impact						
Mitigable		High Mitigation exists and will considerably reduce the significance of impacts				
Potential mitigation	Are pip known exp Org food The Sto sim it mu Soil mu The post	 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. Organic matter, such as roots and humus/topsoil should be removed from the footprint of structures and stockpiled separately for landscaping purposes. The stockpiling of topsoil for use in rehabilitation is required. 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. Soil disturbance during the removal of alien invasive plants must be minimised as much as possible. 				
		e branches used to create berms. Ar ised for this purpose if it is without see	,	tion on site can be		
Assessment		Without 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	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 irreplaceabilit y	Low	Low The resource is not damaged Low irreparably or is not scarce		The resource is not damaged irreparably or is not scarce		
Significance		Minor - negative		ible - negative		
Comment on significance	lead to the envisaged reused on	reas of the site in preparation for core potential loss of topsoil through rund to be a significant impact with mitiguite for rehabilitation purposes.	off and incorrect sto ation measures in p	orage. This is not blace. Topsoil can be		
Cumulative impacts	Without mi	tigation this impact could result in po ater flow.	otential erosion dow	vnhill of the site caused		

Project Phase

Project Phase	Construction			
Activity	Pollution of groundwater			
Description of impact	Spillages of diesel, petrol, oil, paints, clears and other harmful chemicals. These substances may potentially percolate into the groundwater and enter the surrounding environment			
Mitigable	High Mitig	gation exists and will considerab	oly reduce the sig	nificance of impacts
Potential mitigation	 High Mitigation exists and will considerably reduce the significance of impacts Install the sewage and and wastewater infrastructure according to applicable national SANS standards (SANS1200 Part K:Civil Engineering Standard Specifications, SANS10400:The National Building Regulations and Building Standards Act, SANS 1913:Planning, Design, and Construction of Sanitation Systems), DWS Guidelines and adhere to municipal regulations & by-laws. Site to be monitored regularly for contaminant spillages and if detected, contact spillage remediation companies. Separate, tightly cover and monitor toxic substances to prevent spills and possible site contamination. Cover stockpiles of building materials like cement, sand and other powders. Regularly inspect stockpiles for spillages and store away from waterways or drainage areas. Collect any wastewater generated from site activities during construction insettlement tanks then screen, discharge the clean water, and dispose of remaining sludge according to environmental regulations. Install at least three monitoring piezometers into the water table, one upstream and two downstream of site. 			
Assessment		Without mitigation	1 11	With mitigation
Nature	Negative	I	Low Negative	
Duration	Short term	Impact will last between 1 and 5 years	Brief	Impact will not last longer than 1 year
Extent	Local	Extending across the site and to nearby settlements	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	Probable	It is most likely that the impact will occur	Probable	It is most likely that the impact will occur
Confidence	High Substantive supportive data High Substantive supportive exists to verify the exists to verify the		Substantive supportive data exists to verify the assessment	
Reversibility	Partly the impact is reversible but reversible more intense mitigation reversible the impact can be reversible with the impleme		the impact can be reversed with the implementation of minor mitigation measures.	
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	negative.	plementation of mitigation med	_	
Cumulative impacts		npact is negligible negative witler with other projects are not ar		nulative impacts to

Project Phase		Construction	
Activity	Noise pollution		
Description of		Noise caused by machinery and staff	
impact			
Mitigable	Low	Mitigation does not exist; or mitigation will slightly reduce the significance of impacts	

Potential	Construction activities must only take place during normal working times between				
mitigation		on weekdays.			
		may be fitted with silences			
		•	working with	in a residential area and noise	
		oe kept low.			
Assessment	Without mitigation		With 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 probable	It is most likely that the impact will occur	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	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	Not relevant		Not relevant		
Significance	Mino	r - negative	N	legligible - negative	
Comment on	Some extent of nois	se pollution during constru		cted; however, with mitigation	
significance	the impact will be r	•	•	Ç	
Cumulative impacts	No cumulative imp	acts exist.			

Project Phase		Constru	ıction	
Activity	Visual impact			
Description of	Removal of some v	egetation will be required	for earthworks. Some vegetation would	
impact		•	g the visibility of the site and resulting in a	
	loss of the vegetation	on visual resource. During (construction, earthworks would some visual	
	scarring of the land	scape.		
Mitigable	Medium	Mitigation exists and will r	notably reduce significance of impacts	
Potential mitigation	adopted to vegetation, landscape. The necess protect the Appoint a Lord and to prepare areas. Implement of the second s	mitigate the colours, heigetc, which will all control ary measures be implemented and scape consultant to reserve a landscape plan to eare a landscape plan for itexternal lighting restrictions.	proposed for the development must be alts, disturbance areas, maximum footprint, ribute to a smaller visual impact on the mented during the construction phase to alter the noise, dust and visual intrusion. Ecommend and implement the introduction protect the existing indigenous vegetation implementation in the private and common and guidelines.	
Assessment	Withou	ut mitigation	With mitigation	
Nature	Negative		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	Local	Extending across the site		
		site and to nearby		and to nearby settlements		
		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	Probable	It is most likely that the	Probable	It is most likely that the		
		impact will occur		impact will occur		
Confidence	High	Substantive supportive	High	Substantive supportive data		
		data exists to verify the		exists to verify the		
		assessment		assessment		
Reversibility	Partly reversible	the impact is reversible	Partly	the impact is reversible but		
		but more intense	reversible	more intense mitigation		
		mitigation measures	measures are required			
		are required				
Resource	Low	Marginal loss, the	Low	Marginal loss, the resource is		
irreplaceability		resource is not		not damaged irreparably or		
		damaged irreparably		is not scarce		
		or is not scarce				
Significance		ate - negative		Minor - negative		
Comment on	_			nesis of the assessment criteria.		
significance		the impacts for the develo				
Cumulative				ecome significant if added to		
impacts				activities associated with the		
				development layout options		
	before mitigation c	before mitigation are medium and low after mitigation.				

Project Phase	Construction				
Activity	Employment				
Description of impact	Empowerment of the local community members living in the area relating to temporary employment opportunities				
Mitigable	Medium Mitigation only exists to ensure that the positive impact is followed through.				
Potential mitigation	representation			n channels to ensure social spossible.	
Assessment	Withou	ıt 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	Not relevant		Not	
irreplaceability			relevant	
			Negligible - positive	
Significance	Negligib	ole - negative	N	legligible - positive
Significance Comment on significance	Due to the proposed impacts between w	d development being on a dithout mitigation and with ocal community to be emp	a small-scale, mitigation. H	there is a low difference in owever, as the impact would construction, mitigation is

Impacts foreseen during the Operational Phase for Alternative 1 (73 Residential Stands):

Project Phase	Operational					
Activity		Visual / Sens				
Description of	The development would result in a small change in visual character from a landscape					
impact				density well landscaped built		
paci	landscape.	aneri aria wiirioor bollalir	95 10 4 1011	density well lariascaped selli		
Mitigable	Medium Mitigation exists and will notably reduce significance of impacts					
Potential		by-laws need to be adhere		co significanco or impacis		
mitigation	Re-vegetation and Landscaping of open space areas with suitable indigenous					
3	vegetation.					
	Systematic removal and follow-up operations of invasive alien plants.					
	Adhere to Architectural Design Guidelines and Landscape Plan.					
				nent and the Keurboom Road.		
		land will be densely veget				
			al Impact Ass	sessment (November 2023).		
Assessment		ut mitigation		With mitigation		
Nature	Negative		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	Local	Extending across the site		
		site and to nearby		and to nearby settlements		
Into noite	Love	settlements	Manulavi	Not ral and/or social		
Intensity	Low	Natural and/ or social functions and/ or	Very low	Natural and/or social functions and/or processes		
		processes are		are slightly altered		
	somewhat altered					
Probability	Probable	It is most likely that the	Probable	It is most likely that the		
Trobability	TIODADIC	impact will occur	TIODADIC	impact will occur		
Confidence	High	Substantive supportive	High	Substantive supportive data		
	9	data exists to verify the		exists to verify the		
		assessment		assessment '		
Reversibility	Partly reversible	the impact is reversible	Partly	the impact is reversible but		
		but more intense	reversible	more intense mitigation		
		mitigation measures		measures are required		
_		are required				
Resource	Low	Marginal loss, the	Low	Marginal loss, the resource is		
irreplaceability		resource is not		not damaged irreparably or		
		damaged irreparably or is not scarce		is not scarce		
Significance	Moder	ate - negative		Minor - negative		
Comment on			rough a synth	nesis of the assessment criteria.		
significance		the impacts for the develo				
oig.iiiicuricc	ino signine ance of	me impacts for me develo		51 00110113 13 10 11.		
	The well-positioned	dand designed developme	ent infrastruct	ture allows for it to blend in very		
				ne landscape. The alternative 2		
	development layo	out option provides a sli	ight advanto	age over the preferred and		
		• •		density and more open space		
				with the implementation of		
				native 1 development layouts		
		ned effectively from the roo				
Cumulative			•	ecome significant if added to		
impacts				activities associated with the		
			•	e development layout option		
	I perote tuttidation c	are medium and low after i	mingation.			

Project Phase		Opera	tional		
Activity		Inputs of stormwater from ro	ofs and roads	into the pond	
Description of impact	Reduced physico-chemical water quality including the introduction of litter.				
Mitigable	High	Mitigation exists and will notab	ly reduce sign	ificance of impacts	
Potential	 No sto 	ormwater infrastructure to be dir	ected toward	s the pond.	
mitigation	pond • Storm on vo	ne maintenance inspections to and spring. water should be diverted to deta prious SDP layouts and are consist agement.	ention ponds o	on the site which are indicated SUDS approach to stormwater	
Assessment		Without mitigation		With mitigation	
Nature	Negative		Low negative		
Duration	Short term	Impact will last between 1 and 2 years.	Brief	Impact will not last longer than 1 year.	
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	Negligible	Natural and/ or social functions and/ or processes are negligibly altered	
Probability	Possible	Has occurred here or elsewhere and could therefore 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 gener knowledge		
Reversibility	Completely reversible	The impact can be reversed with the implementation of minor mitigation measures.	Completely reversible	The impact can be reversed with the implementation of minor mitigation measures.	
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					
Comment on significance	Minor - negative While a natural spring and pond are present on the site, they are very small in extent and can be adequately protected from the development by implementing the 10m buffer during the construction and operational phases as indicated in this report. The presence of this feature is not sufficient to increase the sensitivity of the site to Very High, and it has been excluded from the development area. No stormwater should be put into this pond as the water is of high quality.				
Cumulative impacts	The impact v	vould result in insignificant cumu	lative effects.		

Project Phase		Operational
Activity	Landscapi	ng, gardening and maintenance extending into the pond and buffer area
Description of	Transformation	on of indigenous vegetation through planting, removal and / or dumping.
impact		
Mitigable	High	Mitigation exists and will notably reduce significance of impacts
Potential	• Land	scaping and gardening staff must not undertake any clearing of vegetation
mitigation	inside	e of the 10m buffer.

- A bird hide in the buffer to spot wildlife would be acceptable, but no additional recreational activities. The point is to create a quiet habitat with suitable vegetation cover for continued use by animals, birds etc.
- Indigenous plants found in adjacent thickets may be planted around the pond.
 Only indigenous plants found in the immediate surrounding area may be planted.
- A list of recommended wetland plants for that can be used to improve vegetation cover of muddy areas and marginal areas of the pond is provided in this report.
- Do not place any fish into the pond as only alien invasive fish to the area would survive and could be transferred to other waterbodies on the feet of animals or birds.
- The only plants that should be removed from the area are listed alien invasive species.

	3000				
Assessment		Without mitigation	With mitigation		
Nature	Negative		Low negative	9	
Duration	Short term	Impact will last between 1 and 2 years.	Brief	Impact will not last longer than 1 year.	
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	Negligible	Natural and/ or social functions and/ or processes are negligibly altered	
Probability	Possible	Has occurred here or elsewhere and could therefore 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	Completely reversible	The impact can be reversed with the implementation of minor mitigation measures.	Completely reversible	The impact can be reversed with the implementation of minor mitigation measures.	
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		egligible - negative	
Comment on significance	the green co	The purpose of the pond and spring is to provide a sustained water source for wildlife in the green corridor.			
Cumulative impacts	The impact v	vould result in insignificant cumu	lative effects.		

Project Phase		Operation			
Activity		Stormwater Management			
Description of			Accelerated erosion / polluti	on into sub-surfac	ce water.
impact					
Mitigable	High	Mitigation	n exists and will considerably re	educe the signific	ance of impacts
Potential	•	The storm	n water drainage system must	be adhered to, c	and the system should lead
mitigation	•	runoff water away from sensitive areas to prevent soil erosion. • Use rainwater collection tanks to serve as a retention vessel in downpours.			
Assessment		Wi	thout mitigation	W	ith mitigation
Nature	Negative			Low Negative	
Duration	Short t	erm	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		Ninor - negative		gible - negative
Comment on significance	The development portion of the site is flat with no gradient along its southern boundary and has no defined drainage discharge points. The existing flat and permeable conditions allow for natural infiltration.			
Cumulative impacts	Without mitigation stormwater flow	on this impact could result in po	otential erosion on	the site caused by

Project Phase		Opera	ition		
Activity		Stormwater Runoff			
Description of impact	Alt	reration of surface flows caused	by increased storm	nwater runoff.	
Mitigable	High Mitigati	on exists and will considerably re	educe the significal	nce of impacts	
Potential mitigation	 Stormwater from erven must be attenuated on site as far as possible. Stormwater from access roads must be attenuated onsite (prior to any discharge into retention ponds). The runoff velocity of stormwater must be reduced with energy dissipaters prior to discharge into retention ponds. Stormwater management should encourage infiltration of water into the soil profile and other on site attenuation (i.e. using grass pavers etc.). The natural spring and small dam must be protected by a 10 m buffer throughout the operational phase. No stormwater should be put into this dam as the water is of high quality. 				
Assessment	1	Nithout mitigation	Wit	h mitigation	
Nature	Negative		Low Negative		
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Permanent	Impact may be permanent, or in excess of 20 years	
Extent	Very limited Limited to specific isolated parts of the site Very limited Very limited Limited to specific isolated isolated parts of the site Very limited Limited to specific isolated parts of the site				
Intensity	Medium	Natural and/or social functions and/or processes are notably altered	Low	Natural and/or social functions and/or	

				processes are somewhat 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	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	Minor - negative Negligible - negative			
Comment on significance	The development will result in an increase in the area of paved/hardened surfaces. This will generate increased volumes of stormwater runoff. Hardened surface and establishment of foundations for houses may increase sub-surface flows towards the natural spring and small dam. The dam water is of high quality, and pollutants from stormwater runoff entering the dam should be minimised. Adequate management of stormwater should therefore effectively minimise the intensity of this impact.			
Cumulative impacts	Without mitigo compromised.	ation this impact could result	in the water qua	ality of the dam being

Project Phase	Оре	erational		
Activity	Groundwate	er Contamination		
Description of impact	 Leakage from underground sewage holding tank and associated pipework. Leaks and leachate from the wastewater treatment plant. 			
	 Improperly treated effluent used for WWTP failure. All of the aforementioned impacts of 	could percolate into the groundwater.		
Mitigable	High Mitigation exists and will considerab	ly reduce the significance of impacts		
Potential mitigation	 Ensure the WWTP comply with SANS Specifications, NWA, Water Quality Design, and Construction of Sanitat Design and Operational Guidelines All areas where potential leachate Regularly service the WWTP and instended in the Ensure emergency procedures are occur. Set up a comprehensive monitoring Incorporate monitoring network as into operational phase monitoring Install shallow aquifer piezometers in regularly for any leakages. Should a leak be detected or the management of the	1200 Part K: Civil Engineering Standard Guidelines (DWAF), SANS1913: Planning, ion Systems, Wastewater Treatment Plant (DWAF, 2008). may occur are to be paved and cemented. Dect the integrity and efficacy of the WWTP. In place to rapidly repair WWTP should failure I system to monitor the effluent quality. Implemented during the construction phase In close proximity to the WWTP to be monitored I conitoring piezometers be contaminated, a I sessment should be undertaken and the site I ontamination remediation consultant and the		
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	Local	Extending across the site	Limited	Limited to the site and its
		and to nearby settlements		immediate surroundings
Intensity	Low	Natural and/or social	Negligible	Natural and/ or social
		functions and/or processes		functions and/ or processes
		are somewhat altered		are negligibly altered
Probability	Probable	It is most likely that the	Probable	It is most likely that the
		impact will occur		impact will occur
Confidence	High	Substantive supportive data	High	Substantive supportive data
		exists to verify the		exists to verify the
		assessment		assessment
Reversibility	Partly	the impact is reversible but	Completely	the impact can be reversed
	reversible	more intense mitigation	reversible	with the implementation of
		measures are required		minor mitigation measures.
Resource	Low	The resource is not	Low	The resource is not
irreplaceability		damaged irreparably or is		damaged irreparably or is
		not scarce not scarce		
Significance	Minor - negative Negligible - negative			
Comment on	After the implementation of mitigation measures, the consequence becomes negligible			
significance	and the significance, negligible - negative.			
Cumulative		pact is negligible negative with	_	ulative impacts to
impacts	groundwate	er with other projects are not ar	nticipated.	

Project Phase		Ор	erational		
Activity	Groundwater Recharge and Flooding				
Description of impact		Infrastructure limiting groundw			
Mitigable	High Mitic	gation exists and will considerab	ly reduce the sigr	nificance of impacts	
Potential mitigation	 Permeable pavement and green infrastructure (limit coverage of surface area by infrastructure as far as possible. Rainwater Harvesting Sustainable Urban Drainage Systems (SUDS) Retention and Detention Basins Design stormwater drainage systems to handle increased rainfall events by incorporating overflow pathways, sump pumps, and flow control structures. Installation of piezometers to track groundwater level. Inspect and maintain drainage systems, stormwater infrastructure, and mitigation features. The site levels must be designed such that the floor levels will all be set higher than the level of the Road 394, the existing southern flood containment level. 				
Assessment		Without mitigation		With mitigation	
Nature	Negative		Low 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	Very Limited	Extending only as far as the development site area	
Intensity	Low Natural and/or social functions and/or processes are somewhat altered		Negligible	Natural and/ or social functions and/ or processes are negligibly altered	
Probability	Probable It is most likely that the impact will occur		Probable	It is most likely that the impact will occur	
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment	

Reversibility	Partly	the impact is reversible but	Completely	the impact can be reversed
	reversible	more intense mitigation	reversible	with the implementation of
		measures are required		minor mitigation measures.
Resource	Low	The resource is not	Low	The resource is not
irreplaceability		damaged irreparably or is		damaged irreparably or is
		not scarce		not scarce
Significance	Negligible - negative Negligible - negative			
Comment on	After the implementation of mitigation measures, the consequence becomes negligible,			
significance	and the significance remains as negligible - negative.			
Cumulative	Since the im	pact is negligible negative with	n mitigation, cumu	ulative impacts to
impacts	groundwate	er with other projects are not ar	nticipated.	

Project Phase	Operation			
Activity	Impacts on ecological drivers			
Description of	Effects of the development and activity on the underlying systems and processes that			
impact	support ecosystems.			
Mitigable	Medium	Mitigation will reduce the signif		
Potential		ess to forested areas during c		
mitigation		truction personnel. These areas i		
		ppile and implement an alien r		
	· ·	ities and areas and provides a p	•	•
		ertake regular monitoring to det rolled, as per the Alien Manager		sions early so that they can be
		ict access to forested areas		evelonment is complete. An
		ogical management plan must t		·
		This should contain measures fo	•	· · · · · · · · · · · · · · · · · · ·
	impo		r prorociing ii	lo lolosi ilolli ollado ilallic alla
Assessment		Without mitigation		With mitigation
Nature	Negative		Negative	_
Duration	Long Term	Impact will last more than 15	Long Term	Impact will last more than 15
		years		years
Extent	Limited	Limited to the site and its	Very	Limited to the site and its
		immediate surroundings	limited	immediate surroundings
Intensity	Low	Natural and/or social	Very low	Natural and/or social
		functions and/or processes		functions and/or processes
		are somewhat altered		are slightly altered
Probability	Possible	Has occurred here or	Possible	Has occurred here or
		elsewhere and could		elsewhere and could
Confidence	High	therefore occur	High	therefore occur
Confidence	High	Substantive supportive data exists to verify the assessment	підп	Substantive supportive data exists to verify the
		exists to verify the assessifierit		assessment
Reversibility	Irreversible	the impact is irreversible, and	Irreversible	the impact is irreversible,
NC VCI SIDIIII y	1110 10131010	no mitigation measures exist	1110 10131010	and no mitigation measures
				exist
Resource	High	Irreparable damage and is	High	Irreparable damage and is
irreplaceability		not represented elsewhere		not represented elsewhere
Significance		Minor - negative	N	egligible - negative
Comment on		portant ecological drivers on s		
significance	development are related to maintenance of the forest ecosystem. The forest margins are			
	important for maintaining forest integrity, and the forest canopy needs to be maintained			
	for the health of the forest ecosystem. No development is proposed within the forest, and			
	the secondary forest on the southern margin is also excluded from development.			led trom development.
Cumulative	The impact	would result in insignificant cumu	lative effects	
impacts				

Project Phase		Oper	ation		
Activity	Impacts on ecological corridors				
Description of	Cut-off of natural dispersal and foraging movement by animals, impacts on suitable link				
impact	or important corridor, fragmentation of ecological infrastructure				
Mitigable	Low	Mitigation will slightly reduce th			
Potential		ing should not extend into the			
mitigation		aim is to have an inter-connec		nat extends across properties,	
		d development occur in adjace			
		clearVu fencing to separate the		•	
		g must be incorporated into the		•	
		als (cats and dogs, etc) out of the			
		ing should not extend into the		9	
		nim is to have an inter-connect		nai exterias across propenies,	
		d development occur in adjace de open-space corridors throug		mont	
Assessment		Without mitigation	Tille develop	With mitigation	
Nature	Negative	Williou miligation	Negative	wiin miigailon	
Duration	Permanent	Impact may be permanent,	Permanent	Impact may be permanent,	
Dordilon		or in excess of 20 years		or in excess of 20 years	
Extent	Limited	Limited to the site and its	Limited	Limited to the site and its	
LAIGIII	Limited	immediate surroundings	Limiled	immediate surroundings	
Intensity	Low	Natural and/or social	Negligible	Natural and/ or social	
iniensity	LOW	functions and/or processes	ricgiigibic	functions and/ or processes	
		are somewhat altered		are negligibly altered	
Probability	Definite	There are sound scientific	Definite	There are sound scientific	
,		reasons to expect that the	20111110	reasons to expect that the	
		impact will occur		impact will occur	
Confidence	High	Substantive supportive data	High	Substantive supportive data	
		exists to verify the assessment		exists to verify the	
		·		assessment	
Reversibility	High	Irreparable damage and is	High	Irreparable damage and is	
		not represented elsewhere		not represented elsewhere	
Resource	Low	Marginal loss, the resource is	Low	The resource is not	
irreplaceability		not damaged irreparably or		damaged irreparably or is	
		is not scarce		not scarce	
Significance		Minor - negative		egligible - negative	
Comment on	_	ion type (Garden Route Shale	•	-	
significance		site on the steep slopes are cove			
	for Goukamma /Mesic Dune Thicket (Cowling et al. 2023), which is not threatened, but is separately listed as protected under the National Forests Act. These forested areas are completely excluded from the proposed development (all options) and are not directly				
	affected.				
	The propose	ed development layout makes	provision for	a 20m buffer along the forest	
		also incorporated portions of the			
	_	aso incorporated portions of the accesystem within the developm	•		
Cumulative		may result in cumulative effects:			
impacts		na, reson in combanie checis	ir ii oogii ii ic id	nascapo.	
iiipacis					

Project Phase	Operation			
Activity	Eradication of Alien Vegetation			
Description of	Impacts on biodiversity / natural habitats / increased fire risk			
impact				
Mitigable	High Mitigation exists and will considerably reduce significance of impacts			
Potential	All invasive alien plants should be completely cleared from the property, and where			
mitigation	a tree or bush cover is desired, replaced with suitable indigenous species.			

- Rehabilitation of disturbed areas, as well as previously invaded areas, should promote establishment of site-appropriate indigenous species.
- A suitable planting list of trees and shrubs must be compiled and incorporated into the Landscape Plan.
- An Alien Control Plan should be compiled to systematically remove and control alien plant species.
- Follow-up operations must be done.
- Minimise disturbance to the natural vegetation using low impact manual labour techniques.
- Reduce fire hazard on site

Assessment	Withou	ut mitigation		With mitigation
Nature	Negative	- Januari	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	Very high	Natural and/ or social functions and/ or processes are majorly 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	Modero	ite - negative		Moderate - positive
Comment on significance	An ongoing alien invasive management programme should take place on site. This will protect riparian habitats downslope from degradation and could potentially be the biggest contribution to maintaining and protecting biodiversity on site and in surrounding areas.			
Cumulative impacts	Without mitigation the development would not be meeting design guidelines enforced by the municipality. Specifically design guidelines for the local area.			

Project Phase	Operation
Activity	Formal gardens
Description of impact	Habitat loss for terrestrial wildlife, fragmentation of ecological corridor
Mitigable	Low Mitigation will slightly reduce the significance of impacts
Potential mitigation	 Areas that are not required for development purposes should remain natural with indigenous vegetation. All alien invasive plants must be removed from the site on an on-going basis. Investing landowners within the proposed development should be encouraged to avoid planting exotic plants in favour of locally indigenous plants. Landscaping must be done with locally occurring indigenous vegetation.

Assessment	Withou	ut mitigation		With mitigation
Nature	Negative		Positive	
Duration	Brief	Impact will not last longer than 1 year	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 specific isolated parts of the site
Intensity	Negligible	Natural and/ or social functions and/ or processes are negligibly altered	Very low	Natural and/ or social functions and/ or processes are slightly altered
Probability	Highly unlikely / None	Expected never to happen	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	Medium	The affected environment will only recover from the impact with significant intervention	Not relevant	
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Not relevant	
Significance		ole - negative		Minor - positive
Comment on significance	With mitigation the impact is likely to have more beneficial impact to retaining natural biodiversity, than without mitigation.			
Cumulative impacts	Without mitigation to of indigenous vege		ne spread of c	alien invasive plants and the loss

Project Phase		Oper	ational			
Activity		Package Plant Maintenance				
Description of	Impo	acts associated with the maintenance	of the sewage package plant and potential			
impact		downtime	e or failures.			
Mitigable	High	Mitigation exists and will considerably	reduce the significance of impacts			
Potential mitigation	*	plant. Ensure the maintenance manager is maintenance procedures. Install screening systems to remove clogging or system damage. Dispose of screened non-biodegrace waste disposal site. Install an emergency alarm system emergency storage component. Design the plant with a 48-hou accommodate unexpected downting thave a contract or arrangement with maintenance events. Conduct monthly testing of effluent to	o ensure compliance with quality standards.			
	ľ	Power the plant using a Solar/Eskom battery system with a backup generator to mitigate Eskom power outages.				
Assessment		Without mitigation	With mitigation			
Nature			Low Negative			

Duration	Brief	Impact will not last longer	Brief	Impact will not last longer
Extent	Limited	than 1 year Limited to the site and its immediate surroundings	Very limited	than 1 year Limited to specific isolated parts of the site
Intensity	Medium	Natural and/or social functions and/or processes are notably altered	Low	Natural and/or social functions and/or processes are slightly altered
Probability	Possible	Has occurred here or elsewhere and could therefore occur	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	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	Negligible	No loss of resources	Negligible	No loss of resources
Significance	Mod	derate - negative	Ne	gligible - negative
Comment on significance	The implementation of the proposed mitigation measures will significantly reduce the likelihood and severity of operational failures, environmental contamination, and service disruptions associated with the sewage package plant.			
Cumulative impacts	Without mitigation this impact could result in the groundwater quality being compromised.			

Impacts foreseen during the Decommissioning Phase (73 Residential Stands):

Project Phase		Decom	missioning		
Activity	Package Plant				
Description of	Decommission	Decommissioning of the package plant resulting in potential pollution of surface and			
impact	groundwater sources, soil contamination, and health and safety risks.				
Mitigable	High Mitigation exists and will considerably reduce the significance of impacts				
Potential		and clean tanks before disma			
mitigation	Remove all sludge and residue with certified disposal contractors.				
•		ct soil testing before and after			
	Follows	safe dismantling procedures.			
		e and follow a Health and Saf			
			to municipal s	sewer connections to prevent	
		nealth issues.			
Assessment		ithout mitigation		With mitigation	
Nature	Negative	T	Low Negative		
Duration	Short term	Impact will last between 1	Brief	Impact will not last longer	
		and 2 years		than 1 year	
Extent	Local	Extending across the site	Very limited	Limited to specific isolated	
Into noite	Lave	and to nearby settlements	Negligible	parts of the site	
Intensity	Low	Natural and/or social functions and/or processes	Negligible	Natural and/or social	
		are slightly altered		functions and/ or processes are negligibly altered	
Probability	Possible	Has occurred here or	Improbable	Conceivable, but only in	
Trobubility	1 0331010	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	
		general knowledge		knowledge	
Reversibility	High	The affected	High	The affected environmental	
		environmental will be able		will be able to recover from	
		to recover from the		the impact	
_	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	impact	N 1 1 1 1		
Resource	Negligible	No loss of resources	Negligible	No loss of resources	
irreplaceability		linor noggtive	NI.	aliaible negative	
Significance Comment on		Minor - negative		egligible - negative emptying and removal of the	
significance			•	cycled within the plant system	
3.grillicarice	_	be no sludge accumulation re	_	, , , , , , , , , , , , , , , , , , , ,	
Cumulative				er quality being compromised.	
impacts	lga		9. 501141741	5. 45 s, 25g 50111p1011111001.	
	1				

Impacts foreseen during the Construction Phase for Alternative 2 (19 Residential Stands):

Project Phase		Construction				
Activity	Loss of habitat within CBAs					
Description of impact	Encroachment into and loss of CBA1 and CBA2 areas due construction.					
Mitigable	Medium	Mitigation exists and will notab	ly reduce sign	ificance of impacts		
Potential mitigation	• Some					
Assessment		Without mitigation		With mitigation		
Nature	Negative		Low negative	е		
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	Limited	Limited to the site and its immediate surroundings		
Intensity	Medium	Natural and/or social functions and/or processes are notably altered	Low	Natural and/or social functions and/or processes are somewhat altered		
Probability	Definite	There are sound scientific reasons to expect that the impact will occur	Definite	There are sound scientific reasons to expect that the impact will occur		
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment		
Reversibility	Completely reversible	the impact can be reversed with the implementation of minor mitigation measures.	Completely reversible	the impact can be reversed with the implementation of minor mitigation measures.		
Resource irreplaceability	Medium	the resource is damaged irreparably but is represented elsewhere	Medium	the resource is damaged irreparably but is represented elsewhere		
Significance		Minor - negative		Minor - negative		
Comment on significance	The site occurs entirely within CBA1 and CBA2 areas. The secondary vegetation ("pastures") in the southern part of the site does not have the properties consistent with protecting biodiversity patterns, but remaining areas are ecologically functional. The vegetation on site (within the proposed development footprint) is in relatively poor condition, and consists either of lawns or secondary vegetation with a species					
Cumulative impacts	composition that is not representative of the natural habitat. The impact would result in insignificant cumulative effects as the significance of the impacts is low. The CBAs are designated for the protection of listed Garden Route shale fynbos, but this does not occur within these designated CBA1 areas, only forest.					

Project Phase	Construction			
Activity	Clearance of vegetation for the construction of the dwelling and associated			
		infrastructure		
Description of	Loss of s	Loss of sensitive vegetation, habitat loss for terrestrial wildlife, mortalities to various		
impact	species unable to evade the disturbance, loss of viable propagules, fragmentation of			
	ecological infrastructure			
Mitigable	Medium Mitigation exists and will notably reduce significance of impacts			
Potential	Wherever there are sections of undisturbed natural habitat within the			
mitigation	deve	elopment area, they should not be impacted by the building activities and		

- should be conserved as small islands of natural resources for the small wildlife of the area.
- the removal and translocation of protected plants if found should be undertaken prior to construction clearing activities. A permit is required prior to removal.
- 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.
- Access by heavy machinery should be limited on the site.
- Only areas necessary for the development footprint should be cleared and the remainder of the property should be left natural.
- Laydown areas for construction materials must be contained within the clearing footprint of the proposed development.
- A 10-meter buffer zone must be retained along the base of the slope to protect the forest margin.

A	With mitigation				
Assessment		Without mitigation		With mitigation	
Nature	Negative		Low negative		
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	Medium	Natural and/or social functions and/or processes are notably altered	Low	Natural and/or social functions and/or processes are somewhat 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	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	High	The resource is damaged irreparably but is represented elsewhere	Low	The resource is not damaged irreparably or is not scarce	
Significance		Minor - negative	N	egligible - negative	
Comment on significance	The forested area to the north of the development is excluded from the proposed development and will not be directly affected. Additional Private Open Space will not significantly mitigate the disturbance of vegetation as it will be in the transformed/lawned areas. Rehabilitation of these areas may offset loss of secondary vegetation. Some additional secondary vegetation near the forest margins will be retained with fewer stands.				
Cumulative impacts	The impact	The impact would result in insignificant cumulative effects			

Project Phase	Construction			
Activity		Loss of secondary vegetation within endangered ecosystem		
Description of	Loss of hab	itat on site (within the proposed development footprint), modification of		
impact	ecological processes, spillover effects into surrounding areas due mostly to secondary			
	impacts suc	impacts such as boundary disturbance and alien invasive species spread.		
Mitigable	Medium Mitigation exists and will notably reduce significance of impacts			
Potential mitigation	cons Com priori Unde	 Medium Mitigation exists and will notably reduce significance of impacts Access to forested areas during construction must not be permitted by any construction personnel. These areas must be fenced off and no access allowed. Compile and implement an alien management plan, which highlights control priorities and areas and provides a programme for long-term control. Undertake regular monitoring to detect alien invasions early so that they can be controlled, as per the Alien Management Plan. 		

	Rehabilitation of disturbed areas, as well as previously invaded areas, should promote establishment of site-appropriate indigenous species.			
Assessment	Without mitigation			With mitigation
Nature	Negative	g	Low negative	
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	Medium	Natural and/or social functions and/or processes are notably altered	Low	Natural and/or social functions and/or processes are somewhat altered
Probability	Certain / Definite	There are sound scientific reasons to expect that the impact will definitely occur	Certain / Definite	There are sound scientific reasons to expect that the impact will definitely occur
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
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	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	N	legligible - negative	N	egligible - negative
Comment on significance	Negligible - negative The vegetation type (Garden Route Shale Fynbos) is listed as Endangered. All upland areas of the site on the steep slopes are covered with forest that matches the description for Southern Afrotemperate Forest, which is not threatened, but is separately listed as protected under the National Forests Act. The forest areas on site fall within a CBA1. These forested areas are completely excluded from the proposed development (both options) and are not directly affected. The only remaining non-forest vegetation on site is considered to be secondary. However, on the basis that no legal soil disturbance has occurred during the preceding 10 years, it is legally considered to be natural vegetation that is within an Endangered ecosystem. It is, however, not representative of this vegetation unit and, being secondary, is not considered to be irreplaceable. Additional Private Open Space will not significantly mitigate the disturbance of vegetation as it will be in the transformed/lawned areas. Rehabilitation of these areas may offset loss of secondary vegetation. Some additional secondary vegetation near the forest margins will be retained with fewer stands.			
Cumulative impacts	The impact	would result in insignificant cumu	lative effects	

Project Phase		Construction		
Activity		Loss of individuals of protected tree species		
Description of	Loss of habite	at on site (within the proposed development footprint), disturbance or loss of		
impact	protected tre	ees.		
Mitigable	Medium	Medium Mitigation exists and will notably reduce significance of impacts		
Potential	Retain existing large trees within proposed development.			
mitigation	 If any trees need to be removed or pruned then a permit is required, according to the National Forests Act. 			
	These prop			

Assessment		Without mitigation		With mitigation
Nature	Negative		Low negative	е
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Long Term	Impact will last between 16 and 30 years
Extent	Very limited	Limited to the site and its immediate surroundings	Very limited	Limited to the site and its immediate surroundings
Intensity	High	Natural and/ or social functions and/ or processes are significantly altered	Low	Natural and/or social functions and/or processes are somewhat altered
Probability	Probable	Has occurred here or elsewhere and could therefore 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	Partly reversible	The impact is reversible but more intense mitigation measures are required	Partly reversible	The impact is reversible but more intense mitigation measures are required
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		egligible - negative
Comment on significance	The tree species affected is <i>Sideroxylon inerme</i> , protected under the National Forests Act. A total of 4 individuals were seen on site, all of them relatively large individuals. The species is widespread but is a key and dominant component of coastal forests in the Garden Route. Additional Private Open Space will not significantly mitigate the disturbance of protected species as it will be in the transformed/lawned areas. Rehabilitation of these areas may offset loss of secondary vegetation.			
Cumulative impacts		vould result in insignificant cumu	lative effects	

Project Phase	Construction		
Activity	Loss of habitat for listed threatened animal species		
Description of	Loss of habitat for threatened plant and animal species, spillover effects into surrounding		
impact	areas due mostly to secondary impacts such as dust deposition and alien invasive species		
	spread.		
Mitigable	Medium Mitigation exists and will notably reduce significance of impacts		
Potential mitigation	 Protect natural forest vegetation adjacent to the proposed development site. Rehabilitate and improve the small dam on site, including introducing pond margin vegetation typical of mountain ponds in forested areas. This will provide good habitat for various frogs, including potentially Afrixalus knysnae. Forest habitats on the upland, steeply-sloping part of the site, have high biodiversity and conservation value, and are designated as sensitive. These areas must not be affected by the proposed development. A buffer zone should be retained along the base of the slope to protect the forest margin. For example, steps should be taken to rehabilitate these areas and encourage growth of species, such as Pterocelastrus tricuspidatus and Sideroxylon inerme, that are mesic and fire-resistant. An open space management system should be developed to formalize steps for forest protection. 		

Assessment		Without mitigation		With mitigation
Nature	Negative		Low negative	
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	High	Natural and/ or social functions and/ or processes are significantly altered	Low	Natural and/or social functions and/or processes are somewhat altered
Probability	Probable	Has occurred here or elsewhere and could therefore 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	Partly reversible	The impact is reversible but more intense mitigation measures are required	Partly reversible	The impact is reversible but more intense mitigation measures are required
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	N	egligible - negative	N	egligible - negative
Comment on significance	 Negligible - negative There is habitat on site that is suspected habitat for threatened plant and animal species. This is the forest habitat, which is outside the proposed development footprint and will not be affected by the proposed development. The species that could potentially occur within this habitat are as follows: Knysna Warbler (Vulnerable) has a moderate probability of occurring in forest margin areas. Crowned Eagle (Near Threatened) - the forests on site may constitute part of the general foraging range but it is unlikely that they are resident on site, or are dependent on it. Tunnelling Dung Beetle (Endangered). The type locality of the species is forest habitats in the Keurboomstrand area. Small antelope (Vulnerable). There is a moderate to high probability of it occurring in the forests on site. Additional Private Open Space will not significantly mitigate the disturbance of habitat as it will be in the transformed/lawned areas. Rehabilitation of these areas may offset loss of habitat in secondary vegetation. 			
Cumulative impacts	The potentia	ll impact affects a negligible pro s and will not directly affect any	oportion of the	e overall habitat available for

Project Phase		Construction		
Activity		Waste Pollution		
Description of	Pollutic	on of buffer zones and natural areas caused by waste generated by the		
impact		construction process.		
Mitigable	High Mitigation exists and will considerably reduce significance of impacts			
Potential mitigation	man supp • All c wast	construction waste generated on-site during construction must be adequately aged. Separation and recycling of different waste materials should be corted. construction waste materials must be collected and disposed of at a suitable refacility. Illumping of construction material within natural areas or buffer zones may take re.		

	 The buffer and "no-go" areas must be monitored on a weekly basis to clean-up any waste that may have been blown from the construction site. Adequate sanitary facilities and ablutions must be provided for all personnel throughout the project area. Use of these facilities must be enforced (these facilities must be kept clean so that they are a desired alternative to the surrounding vegetation). 				
Assessment		Without mitigation		With mitigation	
Nature	Negative	-	Low negative	e	
Duration	Short term	Impact will last between 1 and 5 years	Brief	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	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce	
Significance		Negligible - negative		egligible - negative	
Comment on significance	Construction activities are likely to generate significant quantities of solid waste that could pollute buffer zones and natural areas. In addition, the high numbers of construction workers present on site will generate a significant amount of human waste, which could				

Project Phase	Construction
Activity	Construction Vehicles
Description of	Pollution caused by the operation of vehicles and heavy machinery.
impact	
Mitigable	High Mitigation exists and will considerably reduce significance of impacts
Potential mitigation	 Construction activities must be confined to clearly demarcated areas so as to prevent unnecessary disturbance the surrounding environment. No vehicles are to park or operate within "no-go" areas. Excavators and all other machinery and vehicles must be checked for oil and fuel leaks daily. No machinery or vehicles with leaks are permitted to work on site. No fuel storage, refuelling, vehicle maintenance or vehicle depots to be allowed near natural spring and dam. Refuelling and fuel storage areas, and areas used for the servicing or parking of vehicles and machinery, must be located on impervious bases and should have bunds around them (sized to contain 110 % of the tank capacity) to contain any possible spills. These areas must not be located within any natural drainage areas or preferential flow paths and must be located outside of buffer zones. The contractors used for the project should have spill kits available to ensure that any fuel or oil spills are clean-up and discarded correctly.

The impact would result in insignificant cumulative effects.

pollute the environment.

Cumulative

impacts

Assessment		Without mitigation		With mitigation	
Nature	Negative		Low negative	е	
Duration	Short term	Impact will last between 1 and 5 years	Brief	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	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce	
Significance	N	legligible - negative	N	egligible - negative	
Comment on significance	Operation of vehicles could result in spillages or leaks of hydrocarbons (fuel and oil) and could lead to unnecessary disturbance of natural areas.				
Cumulative impacts		would result in insignificant cumu			

Project Phase		Constru	ction		
Activity		Disturbance / removal of topsoil			
Description of		Disturbance of topsoil, potential sc	oil erosion and the lo	oss of topsoil	
impact					
Mitigable	High Mit	gation exists and will considerably re	duce the significar	nce of impacts	
Potential	• Are	eas that are disturbed through buildir	ng activities (such a	s the excavations for	
mitigation	a k exp Org foc The Sto sim it n Soi mu The	relines) should be suitably rehabilitate nock-on effect on biodiversity in the posure and a loss of the soil micro-organic matter, such as roots and historint of structures and stockpiled sees tockpiling of topsoil for use in rehabilitar, to prevent erosion and any invaluation be removed. I disturbance during the removal of conchast possible. The site must be stabilised where necesses is the stability of the	form of an increase ganisms that are essumus/topsoil should parately for landsopilitation is required, ght, must be coveresive alien species thatien invasive plants ary using available ed soils are covered y cut alien vegeta	e in wind erosion, soil sential for plant growth. It is be removed from the aping purposes. The ded with shade cloth or mat begin to grow within a must be minimised as the materials, where a with wood chips, and	
Assessment	Without mitigation With mitigation			n 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 e 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 Negligible - 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		itigation this impact could result in po	otential erosion dov	vnhill of the site caused	

Project Phase		Construction				
Activity		Pollution of groundwater				
Description of impact		Spillages of diesel, petrol, oil, paints, clears and other harmful chemicals. These substances may potentially percolate into the groundwater and enter the surrounding environment				
Mitigable	High Mitig	ation exists and will considerab	oly reduce the sign	nificance of impacts		
Potential mitigation	nation Special	all the sewage and and wastew and SANS standards (SANS1200 cifications, SANS10400:The National SANS 1913:Planning, Design, and delines and adhere to municipate be monitored regularly for carge remediation companies. Carate, tightly cover and monitor contamination. Let stockpiles of building matericularly inspect stockpiles for spillarly inspect stockpiles for spillarly areas. Lect any wastewater generated thement tanks then screen, disconting sludge according to envall at least three monitoring pieze two downstream of site.	Part K:Civil Engine and Building Regulations & by antaminant spillager toxic substances als like cement, sanges and store away from site activities tharge the clean vironmental regular	eering Standard Ulations and Building Standards of Sanitation Systems), DWS y-laws. ges and if detected, contact to prevent spills and possible and other powders. yay from waterways or s during construction water, and dispose of utions.		
Assessment	Without mitigation With 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	Local	Extending across the site and to nearby settlements	Limited	Limited to the site and its immediate surroundings		

Intensity	Low Natural and/or social		Very low	Natural and/ or social	
		functions and/or processes are somewhat altered		functions and/ or processes are slightly altered	
Probability	Probable It is most likely that the impact will occur		Probable	It is most likely that the impact will occur	
Confidence	High Substantive supportive data exists to verify the assessment		High	Substantive supportive data exists to verify the assessment	
Reversibility	Partly reversible	the impact is reversible but more intense mitigation measures are required	Completely reversible	the impact can be reversed with the implementation of minor mitigation measures.	
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 Negligible - negative				
Comment on	After the implementation of mitigation measures, the significance becomes negligible -				
significance	negative.				
Cumulative		Since the impact is negligible negative with mitigation, cumulative impacts to			
impacts	groundwate	er with other projects are not ar	nticipated.		

Project Phase	Construction					
Activity	Noise pollution					
Description of impact	Noise caused by machinery and staff					
Mitigable	Low	Mitigation does not exist; significance of impacts	or mitigation	will slightly reduce the		
Potential mitigation	07:00-17:00 Machinery I Staff must b levels must I	 Construction activities must only take place during normal working times between 07:00-17:00 on weekdays. Machinery may be fitted with silences to dampen noise. 				
Assessment		ut mitigation		With 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 probable	It is most likely that the impact will occur	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	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	Not relevant		Not relevant			
Significance	Minor	r - negative	N	legligible - negative		

Comment on	Some extent of noise pollution during construction is expected; however, with mitigation
significance	the impact will be reduced.
Cumulative	No cumulative impacts exist.
impacts	

Project Phase	Construction			
Activity		Visual ir		
Description of	Removal of some v		•	ks. Some vegetation would
impact	also be cleared for building thereby increasing the visibility of the site and resulting in a			
•				earthworks would some visual
	scarring of the land			
Mitigable	Medium	Mitigation exists and will I	notably redu	ce significance of impacts
Potential				or the development must be
mitigation	vegetation, landscape. The necess protect the Appoint a L of an indig	etc, which will all cont ary measures be implem natural vegetation, to cor andscape consultant to re enous landscape plan to	ribute to a nented during the noise ecommend a protect the	nce areas, maximum footprint, smaller visual impact on the ag the construction phase to e, dust and visual intrusion. Ind implement the introduction existing indigenous vegetation
	areas. • Implement	external lighting restriction	s and guidelii	
A 1			al Impact Ass T	sessment (November 2023).
Assessment		ut mitigation	N. I. a. a. d. i a	With mitigation
Nature	Negative Short torre	lean and will lead	Negative Short torre	Incompared will least be abuse on 1
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	Very low	Natural and/or social functions and/or processes are slightly altered
Probability	Probable	It is most likely that the impact will occur	Probable	It is most likely that the impact will occur
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
Reversibility	Partly reversible	the impact is reversible but more intense mitigation measures are required	Partly reversible	the impact is reversible but more intense mitigation measures are required
Resource	Low	Marginal loss, the	Low	Marginal loss, the resource is
irreplaceability		resource is not damaged irreparably or is not scarce		not damaged irreparably or is not scarce
Significance				Minor - negative
Comment on	The significance of impacts is determined through a synthesis of the assessment criteria.			
significance	The significance of the impacts for the development layout options is low.			
Cumulative impacts	An effect that 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 impacts of this development layout options before mitigation are medium and low after mitigation.			

Project Phase	Construction				
Activity	Employment				
Description of	Empowerment of the local community members living in the area relating to temporary				
impact		employment o			
Mitigable	Medium		nsure that the	e positive impact is followed	
		through.			
Potential			ommunicatio	n channels to ensure social	
mitigation	representation				
		our and source local mate	erials as far a: T		
Assessment		rt mitigation	Dariti	With mitigation	
Nature	Negative	I	Positive		
Duration	Short term	Impact will last	Short term	Impact will last between 1	
F. J I	L =il	between 1 and 5 years	1 1	and 5 years	
Extent	Local	Extending across the	Local	Extending across the site	
		site and to nearby settlements		and to nearby settlements	
Intensity	Low	Natural and/ or social	Low	Natural and/ or social	
illicitishly	LOW	functions and/ or	LOW	functions and/ or processes	
		processes are		are somewhat altered	
		somewhat altered			
Probability	Rare / improbable	Conceivable, but only	Almost	It is most likely that the	
·		in extreme	certain /	impact will occur	
		circumstances, and/or	Highly		
		might occur for this	probable		
		project although this			
		has rarely been known			
0 6 - 1	A A = altrina	to result elsewhere	A 4 = =1*	Data waisa di sa is la sasa di sa	
Confidence	Medium	Determination is based	Medium	Determination is based on	
		on common sense and general knowledge		common sense and	
Reversibility	Not relevant	general knowledge	Not	general knowledge	
Reversioning	Nortelevani		relevant		
Resource	Not relevant		Not		
irreplaceability	1.01101010111		relevant		
Significance	Nealiaib	ole - negative		legligible - positive	
Comment on				there is a low difference in	
significance	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 e			-	
Cumulative	Minor upliftment for	the local community.			
impacts					

Impacts foreseen during the Operational Phase for Alternative 2 (19 Residential Stands):

Project Phase	Operational		
Activity	Visual / Sense of place		
Description of	The development would result in a small change in visual character from a landscape		
impact	covered in vegetation and without buildings to a low-density well landscaped built		
	landscape.		
Mitigable	Medium	Mitigation exists and will notably reduce significance of impacts	
Potential	Municipal by-laws need to be adhered to.		
mitigation	Re-vegetation and Landscaping of open space areas with suitable indigenous		
	vegetation.		

	 Systematic removal and follow-up operations of invasive alien plants. Adhere to Architectural Design Guidelines and Landscape Plan. Create a 10m wide buffer between the development and the Keurboom Road. 					
	This strip of I	and will be densely vegeto	etated to obscure the development. Sual Impact Assessment (November 2023).			
Assessment		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 somewhat altered	Very low	Natural and/or social functions and/or processes are slightly altered		
Probability	Probable	It is most likely that the impact will occur	Probable	It is most likely that the impact will occur		
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment		
Reversibility	Partly reversible	the impact is reversible but more intense mitigation measures are required	Partly reversible	the impact is reversible but more intense mitigation measures are required		
Resource irreplaceability	Low	Marginal loss, the resource is not damaged irreparably or is not scarce	Low	Marginal loss, the resource is not damaged irreparably or is not scarce		
Significance	Modero	ate - negative		Minor - negative		
Comment on significance	The significance of impacts is determined through a synthesis of the assessment criteria. The significance of the impacts for the development layout options is low.					
Cumulative impacts	The well-positioned and designed development infrastructure allows for it to blend in very well with its surroundings and create minimal contrast in the landscape. The alternative 2 development layout option provides a slight advantage over the preferred and alternative 1 development layout options due to its lower density and more open space for landscaping to screen views from the road. But with the implementation of appropriate mitigation measures the preferred and alternative 1 development layouts can also be screened effectively from the road. An effect that 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					
ппрастя	proposed develop	· · · · · · · · · · · · · · · · · · ·	pacts of the	e development layout option		

Project Phase	Operation			
Activity	Stormwate	r Management		
Description of	Accelerated erosion / po	llution into sub-surface water.		
impact				
Mitigable	High Mitigation exists and will considerably reduce the significance of impacts			
Potential	The storm water drainage system must be adhered to, and the system should lead			
mitigation	runoff water away from sensitive are			
	Use rainwater collection tanks to serve as a retention vessel in downpours.			
	Driveways can be constructed from grass blocks to allow for effective retarding of			
	surface flow and facilitate percolation.			
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	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		linor - negative		ible - negative
Comment on significance	The development portion of the site is flat with no gradient along its southern boundary and has no defined drainage discharge points. The existing flat and permeable conditions allow for natural infiltration.			
Cumulative impacts	Without mitigation this impact could result in potential erosion on the site caused by stormwater flow.			

Project Phase	Operation				
Activity		Stormwate	er Runoff		
Description of	Alf	eration of surface flows caused	by increased storm	nwater runoff.	
impact					
Mitigable	High Mitigati	on exists and will considerably re	educe the significa	nce of impacts	
Potential	• Stormw	rater from erven must be attenue	ated on site as far (as possible.	
mitigation	 Stormw 	rater from access roads must be	e attenuated onsit	e (prior to any discharge	
	into ret	ention ponds).			
	The run	off velocity of stormwater must	be reduced with	energy dissipaters prior to	
	dischar	ge into retention ponds.			
	Stormwater management should encourage infiltration of water into the soil profile				
	and of	ner on site attenuation (i.e. using	grass pavers etc.)		
	The natural spring and small dam must be protected by a 10 m buffer throughout				
	the operational phase.				
	No stormwater should be put into this dam as the water is of high quality				
Assessment	Without mitigation With mitigation				
Nature	Negative		Low Negative		
Duration	Permanent	Impact may be permanent,	Permanent	Impact may be	
	or in excess of 20 years permanent, or in				
				excess of 20 years	
Extent	Very limited	Limited to specific isolated	Very limited	Limited to specific	
		parts of the site		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	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		Minor - negative		ible - negative
Comment on significance	The development will result in an increase in the area of paved/hardened surfaces. This will generate increased volumes of stormwater runoff. Hardened surface and establishment of foundations for houses may increase sub-surface flows towards the natural spring and small dam. The dam water is of high quality, and pollutants from stormwater runoff entering the dam should be minimised. A lower density development may result in less runoff with fewer hardened surfaces. Adequate management of stormwater should therefore effectively minimise the intensity of this impact.			
Cumulative impacts	Without mitigo compromised.	ation this impact could result	in the water qua	ality of the dam being

Project Phase	Operational
Activity	Groundwater Contamination
Description of	Leakage from underground sewage holding tank and associated pipework.
impact	Leaks and leachate from the wastewater treatment plant.
	Improperly treated effluent used for irrigation.
	WWTP failure.
	All of the aforementioned impacts could percolate into the groundwater.
Mitigable	High Mitigation exists and will considerably reduce the significance of impacts
Potential mitigation	 Ensure the WWTP comply with SANS1200 Part K: Civil Engineering Standard Specifications, NWA, Water Quality Guidelines (DWAF), SANS1913: Planning, Design, and Construction of Sanitation Systems, Wastewater Treatment Plant Design and Operational Guidelines (DWAF, 2008). All areas where potential leachate may occur are to be paved and cemented. Regularly service the WWTP and inspect the integrity and efficacy of the WWTP. Ensure emergency procedures are in place to rapidly repair WWTP should failure occur. Set up a comprehensive monitoring system to monitor the effluent quality. Incorporate monitoring network as implemented during the construction phase into operational phase monitoring Install shallow aquifer piezometers in close proximity to the WWTP to be monitored regularly for any leakages. Should a leak be detected or the monitoring piezometers be contaminated, a baseline Phase 1 Contamination Assessment should be undertaken and the site

	remediated in consultation with a contamination remediation consultant and the				
	Auth	norities.			
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	Local	Extending across the site and to nearby settlements	Limited	Limited to the site and its immediate surroundings	
Intensity	Low	Natural and/or social functions and/or processes are somewhat altered	Negligible	Natural and/ or social functions and/ or processes are negligibly altered	
Probability	Probable	It is most likely that the impact will occur	Probable	It is most likely that the impact will occur	
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment	
Reversibility	Partly reversible	the impact is reversible but more intense mitigation measures are required	Completely reversible	the impact can be reversed with the implementation of minor mitigation measures.	
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 Negligible - negative				
Comment on significance	After the implementation of mitigation measures, the consequence becomes negligible and the significance, negligible - negative.				
Cumulative impacts	Since the impact is negligible negative with mitigation, cumulative impacts to groundwater with other projects are not anticipated.				

Project Phase		Operational				
Activity		Groundwater Re	echarge and Floo	oding		
Description of		Infrastructure limiting grounds	vater recharge a	ınd/or flooding risk.		
impact						
Mitigable	High Mitig	gation exists and will consideral	oly reduce the sig	gnificance of impacts		
Potential			nfrastructure (limi	t coverage of surface area by		
mitigation		structure as far as possible.				
		nwater Harvesting				
		ainable Urban Drainage Systen	ns (SUDS)			
		ention and Detention Basins				
		gn stormwater drainage systen				
	incorporating overflow pathways, sump pumps, and flow control structures.					
	 Installation of piezometers to track groundwater level. Inspect and maintain drainage systems, stormwater infrastructure, and mitigation 					
		ect ana maintain arainage sys Tures.	rems, stormwater	intrastructure, and mitigation		
			ah that tha floor l	levels will all be set higher than		
		level of the Road 394, the existi		-		
Assessment	1110	Without mitigation		With mitigation		
Nature	Negative		Low Negative	3		
Duration	Brief	Impact will not last longer	Brief	Impact will not last longer		
		than 1 year		than 1 year		
Extent	Limited	Limited to the site and its	Very Limited	Extending only as far as the		
	immediate surroundings development site area					
Intensity	Low	Natural and/or social	Negligible	Natural and/ or social		
		functions and/or processes		functions and/ or processes		
		are somewhat altered		are negligibly altered		
Probability	Probable	It is most likely that the	Probable	It is most likely that the		
		impact will occur		impact will occur		

Confidence	High	Substantive supportive data exists to verify the	High	Substantive supportive data exists to verify the	
		assessment		assessment	
Reversibility	Partly reversible	the impact is reversible but more intense mitigation measures are required	Completely reversible	the impact can be reversed with the implementation of minor mitigation measures.	
Resource	Low	The resource is not	Low	The resource is not	
irreplaceability		damaged irreparably or is		damaged irreparably or is	
		not scarce		not scarce	
Significance	N	egligible - negative	Neg	gligible - negative	
Comment on	After the implementation of mitigation measures, the consequence becomes negligible,				
significance	and the significance remains as negligible - negative.				
Cumulative	Since the im	pact is negligible negative with	n mitigation, cum	ulative impacts to	
impacts	groundwate	er with other projects are not ar	nticipated.		

Project Phase	Operation					
Activity	Impacts on ecological drivers					
Description of	Effects of t	Effects of the development and activity on the underlying systems and processes that				
impact		support ed	cosystems.			
Mitigable	Medium	Mitigation will reduce the signif	icance of imp	pacts		
Potential		ess to forested areas during co				
mitigation		truction personnel. These areas i				
		npile and implement an alien r				
		ities and areas and provides a p				
		ertake regular monitoring to det		sions early so that they can be		
		rolled, as per the Alien Manager				
		rict access to forested areas				
		ogical management plan must b				
		This should contain measures fo	r protecting th	ne forest from undue fraffic and		
_	impo					
Assessment		Without mitigation		With mitigation		
Nature	Negative -	I	Negative -	1		
Duration	Long Term	Impact will last more than 15	Long Term	Impact will last more than 15		
		years		years		
Extent	Limited	Limited to the site and its	Very	Limited to the site and its		
		immediate surroundings	limited	immediate surroundings		
Intensity	Low	Natural and/or social	Very low	Natural and/or social		
		functions and/or processes		functions and/or processes		
- I I III	5 "	are somewhat altered	5 " 1	are slightly altered		
Probability	Possible	Has occurred here or	Possible	Has occurred here or		
		elsewhere and could		elsewhere and could		
0 6 - 1	1.15 - 1-	therefore occur	1.151-	therefore occur		
Confidence	High	Substantive supportive data	High	Substantive supportive data		
		exists to verify the assessment		exists to verify the		
Dana malla ilila	luna caralla la	the single and in improve with the constitution	lana a naila la	assessment		
Reversibility	Irreversible	the impact is irreversible, and	Irreversible	the impact is irreversible,		
		no mitigation measures exist		and no mitigation measures exist		
Resource	High	Irreparable damage and is	High	Irreparable damage and is		
irreplaceability	Tilgii		Tilgit	not represented elsewhere		
Significance	not represented elsewhere not represented elsewhere Minor - negative Negligible - negative					
Comment on	The most important ecological drivers on site that may be affected by the proposed					
significance	development are related to maintenance of the forest ecosystem. The forest margins are					
J.grillicarice		important for maintaining forest integrity, and the forest canopy needs to be maintained				
		for the health of the forest ecosystem. No development is proposed within the forest, and				
		ary forest on the southern margin				
	1 1110 30001100	ary recession into southern margin	1 13 4130 070100	iod nom dovolopmom.		

Cumulative	The impact would result in insignificant cumulative effects
impacts	

Project Phase	Operation				
Activity	Impacts on ecological corridors				
Description of	Cut-off of natural dispersal and foraging movement by animals, impacts on suitable link				
impact		or important corridor, fragment			
	Low	Mitigation will slightly reduce th		•	
Potential		ng should not extend into the			
mitigation		im is to have an inter-connec		nat extends across properties,	
		d development occur in adjace			
		learVu fencing to separate the			
		g must be incorporated into th		the contract of the contract o	
		als (cats and dogs, etc) out of the			
		ng should not extend into the		•	
		im is to have an inter-connect		nat extends across properties,	
		d development occur in adjace			
		de open-space corridors throug	h the develop		
Assessment		Without mitigation		With mitigation	
	Negative		Negative	T	
Duration	Permanent	Impact may be permanent,	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	Limited	Limited to the site and its	
		immediate surroundings	N. 12 11 1	immediate surroundings	
Intensity	Low	Natural and/or social	Negligible	Natural and/ or social	
		functions and/or processes		functions and/ or processes	
Dark to a le 1991	D - ("- "I -	are somewhat altered	D - C - 11 -	are negligibly altered	
Probability	Definite	There are sound scientific	Definite	There are sound scientific	
		reasons to expect that the		reasons to expect that the	
Confidence	Lliada	impact will occur	High	impact will occur	
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the	
		exists to verify the assessment		assessment	
Reversibility	High	Irreparable damage and is	High	Irreparable damage and is	
Reversibility	riigri	not represented elsewhere	riigii	not represented elsewhere	
Resource	Low	Marginal loss, the resource is	Low	The resource is not	
irreplaceability	LOVV	not damaged irreparably or		damaged irreparably or is	
mepiaecability		is not scarce		not scarce	
Significance		Minor - negative	N	egligible - negative	
	The vegetation type (Garden Route Shale Fynbos) is listed as Endangered. All upland				
	areas of the site on the steep slopes are covered with forest that matches the description				
	for Goukamma /Mesic Dune Thicket (Cowling et al. 2023), which is not threatened, but is				
	separately listed as protected under the National Forests Act. These forested areas are completely excluded from the proposed development (all options) and are not directly affected.				
-	The propose	d development layout makes	provision for a	a 20m buffer along the forest	
	margin and also incorporated portions of the secondary vegetation area to form part of				
		ace system within the developm			
Cumulative	The impact n	nay result in cumulative effects	through the la	ndscape.	
impacts					

Project Phase	Operation			
Activity	Eradication of Alien Vegetation			
Description of	Impacts on biodiversity / natural habitats / increased fire risk			
impact				

Mitigable	High Mitigation exists and will considerably reduce significance of impacts			
Potential mitigation	 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. Rehabilitation of disturbed areas, as well as previously invaded areas, should promote establishment of site-appropriate indigenous species. A suitable planting list of trees and shrubs must be compiled and incorporated into the Landscape Plan. An Alien Control Plan should be compiled to systematically remove and control alien plant species. Follow-up operations must be done. Minimise disturbance to the natural vegetation using low impact manual labour techniques. Reduce fire hazard on site 			
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	Very high	Natural and/ or social functions and/ or processes are majorly 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 ongoing alien invasive management programme should take place on site. This will protect riparian habitats downslope from degradation and could potentially be the biggest contribution to maintaining and protecting biodiversity on site and in surrounding areas.			
Cumulative impacts	Without mitigation the development would not be meeting design guidelines enforced by the municipality. Specifically design guidelines for the local area.			

Project Phase	Operation			
Activity	Formal gardens			
Description of	Habitat loss for terrestrial wildlife, fragmentation of ecological corridor			
impact				
Mitigable	Low Mitigation will slightly reduce the significance of impacts			
Potential mitigation	 Areas that are not required for development purposes should remain natural with indigenous vegetation. 			
	All alien invasive plants must be removed from the site on an on-going basis.			

	Investing landowners within the proposed development should be encouraged to			
	avoid planting exotic plants in favour of locally indigenous plants.			
Assessment	Landscaping must be done with locally With and marking at an armount of the control of the			
Nature	Without mitigation Negative		With mitigation Positive	
Duration	Brief	Impact will not last longer than 1 year	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 specific isolated parts of the site
Intensity	Negligible	Natural and/ or social functions and/ or processes are negligibly altered	Very low	Natural and/ or social functions and/ or processes are slightly altered
Probability	Highly unlikely / None	Expected never to happen	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	Medium	The affected environment will only recover from the impact with significant intervention	Not relevant	
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Not relevant	
Significance	Negligible - negative			Minor - positive
Comment on significance	With mitigation the impact is likely to have more beneficial impact to retaining natural biodiversity, than without mitigation.			
Cumulative impacts	Without mitigation this impact could result in the spread of alien invasive plants and the loss of indigenous vegetation.			

Project Phase	Operational			
Activity	Package Plant Maintenance			
Description of	Impacts associated with the maintenance of the sewage package plant and potential			
impact	downtime or failures.			
Mitigable	High Mitigation exists and will considerably reduce the significance of impacts			
Potential	Assign an Estate maintenance manager responsible for daily inspections of the			
mitigation	plant.			
	Ensure the maintenance manager is trained specifically in plant operations and maintenance procedures.			
	Install screening systems to remove non-biodegradable materials and prevent clogging or system damage.			
	Dispose of screened non-biodegradable waste via incineration at a recognized waste disposal site.			
	Install an emergency alarm system that activates if effluent levels rise in the emergency storage component.			
	Design the plant with a 48-hour emergency effluent storage period to accommodate unexpected downtime or failures.			
	Have a contract or arrangement with effluent removal tanker services for extended maintenance events.			
	 Conduct monthly testing of effluent to ensure compliance with quality standards. 			
	Power the plant using a Solar/Eskom battery system with a backup generator to mitigate Eskom power outages.			

Assessment	W	ithout mitigation		With mitigation
Nature	Negative		Low 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	Very limited	Limited to specific isolated parts of the site
Intensity	Medium	Natural and/or social functions and/or processes are notably altered	Low	Natural and/or social functions and/or processes are slightly altered
Probability	Possible	Has occurred here or elsewhere and could therefore occur	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	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	Negligible	No loss of resources	Negligible	No loss of resources
Significance	Moderate - negative Negligible - negative			gligible - negative
Comment on significance	The implementation of the proposed mitigation measures will significantly reduce the likelihood and severity of operational failures, environmental contamination, and service disruptions associated with the sewage package plant.			
Cumulative impacts	Without mitigation this impact could result in the groundwater quality being compromised.			

Impacts foreseen during the Decommissioning Phase (19 Residential Stands):

Project Phase	Decommissioning			
Activity			ige Plant	
Description of	Decommission			ential pollution of surface and
impact		ources, soil contamination, ar		
Mitigable		on exists and will considerably		
Potential		and clean tanks before disma		
mitigation		e all sludge and residue with a	•	Il contractors.
9		ct soil testing before and after		
		PPE and training for workers.		
		safe dismantling procedures.		
	Prepare	e and follow a Health and Saf	ety Plan.	
	Ensure	seamless transfer of services	to municipal s	sewer connections to prevent
		nealth issues.		
Assessment		ithout mitigation		With mitigation
Nature	Negative		Low Negative	
Duration	Short term	Impact will last between 1	Brief	Impact will not last longer
		and 2 years		than 1 year
Extent	Local	Extending across the site	Very limited	Limited to specific isolated
		and to nearby settlements	\	parts of the site
Intensity	Low	Natural and/or social	Negligible	Natural and/ or social
		functions and/or processes		functions and/or processes
Dura la arla ilita :	Dansilala	are slightly altered	liancia ira la aila la	are negligibly altered
Probability	Possible	Has occurred here or elsewhere and could	Improbable	Conceivable, but only in extreme circumstances,
		therefore occur		and/or might occur for this
		mererore occor		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
		general knowledge		knowledge
Reversibility	High	The affected	High	The affected environmental
		environmental will be able		will be able to recover from
		to recover from the		the impact
		impact		
Resource	Negligible	No loss of resources	Negligible	No loss of resources
irreplaceability				
Significance		Minor - negative		egligible - negative
Comment on	The decommissioning requirements will only comprise the emptying and removal of the			
significance	above ground containerized bio reactor plant. Sludge is recycled within the plant system			
Cumulative	and there will be no sludge accumulation requiring removal on decommissioning. Without mitigation this impact could result in the groundwater quality being compromised.			
	without thingalion this impact could result in the groundwater quality being compromised.			
impacts				