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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 Impact will last between 1 and 2 years					

Medium Term	ium 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 alter				

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	dium 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					
Rc	ıting	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 (-)	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	
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	Clear	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.			
Assessment	prom	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 secondary, is not considered to be irreplaceable.			
Cumulative impacts		would result in insignificant cumu		

Project Phase		Construction			
Activity		Loss of individuals of p	rotected tree	species	
Description of	Loss of habite	at on site (within the proposed d	evelopment fo	potprint), disturbance or loss of	
impact	protected tre	es.			
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	Loss of habit	at for threatened plant and anir	nal species, sp	pillover effects into surrounding	
impact	areas due m	ostly to secondary impacts such	as dust depos	ition and alien invasive species	
	spread.				
Mitigable	Medium	Mitigation exists and will notab	ly reduce sign	ificance of impacts	
Potential	• Prote	ect natural forest vegetation adj	acent to the p	roposed development site.	
mitigation		abilitate and improve the small			
		gin vegetation typical of mount			
		d habitat for various frogs, includ			
	 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	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.				
		pen space management system	n should be de	eveloped to formalize steps for	
	fores	t protection.			
Assessment		Without mitigation		With mitigation	
Nature	Negative		Low negativ	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	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	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		l 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	Pollution	
Description of	Pollutio	on of buffer zones and natural ar	•	waste generated by the
impact		constructi	on process.	
Mitigable	High	Mitigation exists and will consid	lerably reduce	significance of impacts
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	Brief	Impact will not last longer
		and 5 years		than 1 year
Extent	Very	Limited to the site and its	Very	Limited to the site and its
	limited	immediate surroundings	limited	immediate surroundings
Intensity	Low	Natural and/or social	Very low	Natural and/or social
		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
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				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	prev No v Exco					
	 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. 					
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 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	ulative effects.	

Activity		5:1 1 /				
December of		Disturbance / removal of topsoil				
Description of	Disturbance of topsoil, potential soil erosion and the loss of topsoil					
impact						
		gation exists and will considerably re				
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	011113	ed for this purpose if it is without see Without mitigation		n mitigation		
	egative		Low Negative	3		
Duration Sh	nort erm	Impact will last between 1 and 5 years	Brief	Impact will not last longer than 1 year		
Extent Lin	mited	Limited to the site and its immediate surroundings	Very limited	Limited to specific isolated parts of the site		
Intensity Lo)W	Natural and/or social functions and/or processes are somewhat altered	Very low	Natural and/ or social functions and/ or processes are slightly altered		
•	lmost ertain	It is most likely that the impact will occur	Likely	The impact may occur		
Confidence Hig	High Substantive supportive data exists High Substantive supportive			Substantive supportive data exists to verify the assessment		
Reversibility Me	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			environmental will be able to recover from the impact		
Resource Lo irreplaceabilit y)W	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	ible - 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	Pollution of groundwater					
Description of	Spillages of diesel, petrol, oil, paints, clears and other harmful chemicals. These substances					
impact	may pote	ntially percolate into the ground	dwater and ente	er the surrounding environment		
Mitigable	High Mitig	gation exists and will considerab	ly reduce the sig	gnificance of impacts		
Potential	• Insta	all the sewage and and wastew	rater infrastructur	re according to applicable		
mitigation	natio	onal SANS standards (SANS1200	Part K:Civil Engir	neering Standard		
				gulations and Building Standards		
		SANS 1913:Planning, Design, ar				
		delines and adhere to municipo	•	·		
		to be monitored regularly for co	ontaminant spilla	iges and if detected, contact		
		age remediation companies.				
	The state of the s	arate, tightly cover and monito	r toxic substance	es to prevent spills and possible		
		contamination.	1. 19			
		er stockpiles of building materio				
	_	ularly inspect stockpiles for spillo nage areas.	ages and store a	way from waterways or		
		nage areas. ect any wastewater generated	from site activiti	es during construction		
		ttlement tanks then screen, disc				
		aining sludge according to env		•		
		all at least three monitoring piez				
		two downstream of site.				
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	Very low	Natural and/ or social		
		functions and/or processes		functions and/ or processes		
		are somewhat altered	D 1 11	are slightly altered		
Probability	Probable	It is most likely that the	Probable	It is most likely that the		
Cantidanas	Llicula	impact will occur	High	impact will occur		
Confidence	High	Substantive supportive data exists to verify the	High	Substantive supportive data exists to verify the		
		assessment		assessment		
Reversibility	Partly	the impact is reversible but	Completely	the impact can be reversed		
Reversioning	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		egligible - negative		
Comment on	After the im	plementation of mitigation med	asures, the signifi	cance becomes negligible -		
significance	negative.					
Cumulative		npact is negligible negative with		nulative impacts to		
impacts	groundwater with other projects are not anticipated.					

Project Phase	Construction					
Activity	Noise pollution					
Description of impact	Noise caused by machinery and staff					
Mitigable	Low	Mitigation does not exist;	or mitigation	will slightly reduce the		
		significance of impacts				
Potential mitigation	07:00-17:00 • Machinery r	on weekdays. may be fitted with silences	to dampen			
		•	working with	in 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	Minor - negative Negligible - negative					
Comment on	Some extent of noise pollution during construction is expected; however, with mitigation					
significance	the impact will be reduced.					
Cumulative	No cumulative imp	acts exist.				
impacts						

Project Phase		Construction	
Activity		Visual impact	
Description of impact	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	ensure 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	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	Low	Natural and/ or social		
		functions and/ or		functions and/ or processes		
		processes are		are somewhat altered		
		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	Minor upliftment for the local community.				

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

Project Phase		Opera	tional			
Activity	Visual / Sense of place					
Description of	The development			al character from a landscape		
impact	The development would result in a small change in visual character from a landscape covered in vegetation and without buildings to a low-density well landscaped built landscape.					
Mitigable	Medium	Mitigation exists and will	notably redu	ce significance of impacts		
Potential mitigation	 Municipal by-laws need to be adhered to. 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 land will be densely vegetated to obscure the development. Implement mitigations as per the Visual Impact Assessment (November 2023). 					
Assessment		out mitigation		With mitigation		
Nature	Negative	<u> </u>	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	Moder	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. 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.					
Cumulative impacts						

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 signi	ificance 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.	T		
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				Determination is based on	
Communica	7410410111	common sense and general	Modiciti	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	While a natural spring and pond are present on the site, they are very small in extent and				
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				
	been excluded from the development area. No stormwater should be put into this pond				
Cumaulativa		is of high quality. vould result in insignificant cumu	lativo effect		
Cumulative	ine impact v	vouia resuit in insignificant cumu	idlive effects.		
impacts					

Project Phase		Operational
Activity	Lands	caping, gardening and maintenance extending into the pond and buffer area
Description of	Transforr	mation of indigenous vegetation through planting, removal and / or dumping.
impact		
Mitigable	High	Mitigation exists and will notably reduce significance of impacts
Potential	٠ L	andscaping and gardening staff must not undertake any clearing of vegetation
mitigation	ir	nside 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	14/*!! I *!* I*		34/011 010 10	
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 would result in insignificant cumulative effects.				

Project Phase	Operation			
Activity		Stormwater M	anagement	
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	runof	runoff water away from sensitive areas to prevent soil erosion.		
	Use ro	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	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 this impact could result in potential erosion on the site caused by stormwater flow.			

Project Phase		Opera	ition	
Activity		Stormwate	er 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 significa	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. 			
Assessment		mwater should be put into this d 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	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	<u> </u>	ation this impact could result	in the water qua	ality of the dam being

Project Phase	Ope	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 irrigation. WWTP failure. All of the aforementioned impacts could percolate into the groundwater. 				
Mitigable		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 ins 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 most baseline Phase 1 Contamination As 	1200 Part K: Civil Engineering Standard Guidelines (DWAF), SANS1913: Planning, ion Systems, Wastewater Treatment Plant			
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 reversible with the implementation minor mitigation measurements.		
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			gligible - negative	
Comment on significance		After the implementation of mitigation measures, the consequence becomes negligible and the significance, negligible - negative.			
Cumulative impacts		npact is negligible negative with er with other projects are not ar	•	ulative impacts to	

Project Phase		Ор	erational		
Activity		Groundwater Re	charge and Floo	ding	
Description of impact		Infrastructure limiting groundw	vater recharge a	nd/or flooding risk.	
Mitigable	High Miti	gation exists and will considerab	ly reduce the sig	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 				
Assessment		level of the Road 394, the existin 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 Negligible Natural and/or social functions and/or processes			Natural and/ or social functions and/ or processes are negligibly altered	
Probability	Probable				
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	Completely reversible	the impact can be reversed 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 impacts	Since the impact is negligible negative with mitigation, cumulative impacts to groundwater with other projects are not anticipated.			

Project Phase	Operation				
Activity		Impacts on ec		rs	
Description of	Effects of t	he development and activity or			
impact		support ed	cosystems.		
Mitigable	Medium	Mitigation will reduce the signif			
Potential	Acc	ess to forested areas during c	onstruction m	oust not be permitted by any	
mitigation		struction 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		and an artist of the second state of the secon	
		rict access to forested areas			
		ogical management plan must b This should contain measures fo	•		
			i profecting if	le loresi from orique frume and	
Assessment	III)	impacts. Without mitigation With mitigation			
Nature	Negative	ga	Negative		
Duration	Long Term	Impact will last more than 15	Long Term	Impact will last more than 15	
		years	Ü	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		
		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	
D	lane, remile le	the clinear makin improvemble and all	luna constala	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	riigii	not represented elsewhere	riigii	not represented elsewhere	
Significance		Minor - negative	N	legligible - negative	
Comment on	The most in	nportant ecological drivers on s			
significance		nt are related to maintenance o	•		
		or maintaining forest integrity, an		· · · · · · · · · · · · · · · · · · ·	
	1	th of the forest ecosystem. No de			
		ary forest on the southern margin		•	
Cumulative		would result in insignificant cumu			
impacts	·				

Project Phase	Operation				
Activity		Impacts on ecological corridors			
Description of impact	Cut-off of natural dispersal and foraging movement by animals, impacts on suitable link or important corridor, fragmentation of ecological infrastructure				
Mitigable	Low	Mitigation will slightly reduce th			
Potential	Fenc	ing should not extend into the	corridor on the	e neighbouring boundaries as	
mitigation		aim is to have an inter-connect			
	shoul	ld 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	
		als (cats and dogs, etc) out of the			
		ing should not extend into the			
		aim is to have an inter-connect		nat extends across properties,	
		ld development occur in adjace			
	Provi	de open-space corridors throug	<u>h the develop</u>		
Assessment		Without mitigation		With mitigation	
Nature	Negative	1	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 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	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	
Dania walla ilila .	Litada	lung in grande la sel gives avec a consel in	Litada	assessment	
Reversibility	High	Irreparable damage and is	High	Irreparable damage and is	
Danasuraa	Love	not represented elsewhere	Love	not represented elsewhere	
Resource	Low	Marginal loss, the resource is	Low	The resource is not	
irreplaceability		not damaged irreparably or is not scarce		damaged irreparably or is not scarce	
Significance		Minor - negative	N		
Comment on	The vegetat			egligible - negative	
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				
significance		ma /Mesic Dune Thicket (Cowlin			
		sted as protected under the No	-		
	completely excluded from the proposed development (all options) and are not directly affected.				
	aneciea.				
	The propose	ed development layout makes	provision for a	a 20m buffer along the forest	
		also incorporated portions of the	•		
		ace system within the developm			
Cumulative		may result in cumulative effects			
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	Witho	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	Medium	Determination is based on common sense and general

		the impact - permanently modified		3		
Resource	Not relevant	, , , , , , , , , , , , , , , , , , , ,	Not			
irreplaceability Significance	Modero	ıte - negative	relevant I	Moderate - positive		
Comment on	An ongoing alien invasive management programme should take place on site. This wi					
significance	protect riparian hab	oitats downslope from deg	radation and c	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		Oner	ation			

general knowledge

able to recover from

environment will not be

The affected

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.

Reversibility

Low

knowledge

Medium

The affected environment will

only recover from the impact

with significant intervention

	Investing landowners within the proposed development should be encouraged to avoid planting exotic plants in favour of locally indigenous plants.				
	Landscaping	g must be done with locall	y 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	Low	The resource is not	Not		
irreplaceability		damaged irreparably or is not scarce	relevant		
Significance	Negligil	ole - negative		Minor - positive	
Comment on	With mitigation the	impact is likely to have mo	re beneficial i	impact to retaining natural	
significance	biodiversity, than without mitigation.				
Cumulative	Without mitigation this impact could result in the spread of alien invasive plants and the loss				
impacts	of indigenous vegetation.				

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		/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				
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 (60 Residential Stands):

Project Phase	Decommissioning				
Activity	Package Plant				
Description of	Decommissioning of the package plant resulting in potential pollution of surface and				
impact	groundwater sources, soil contamination, and health and safety risks.				
Mitigable		on exists and will considerably		nificance of impacts	
Potential		and clean tanks before dismo			
mitigation		e all sludge and residue with a	•		
		ct soil testing before and after	decommission	ing.	
		PPE and training for workers.			
		safe dismantling procedures.			
		e and follow a Health and Saf		and the second second	
			to municipal :	sewer connections to prevent	
Assessment		nealth issues. ithout mitigation		With mitigation	
Nature	Negative	illiou miligation	Low Negative	wiin miigailon	
Duration	Short term	Impact will last between 1	Brief	Impact will not last longer	
Dordilon	SHOTI ICITI	and 2 years	DIICI	than 1 year	
Extent	Local	Extending across the site	Very limited	Limited to specific isolated	
LAIGIII	Local	and to nearby settlements	vory miniod	parts of the site	
Intensity	Low	Natural and/or social	Negligible	Natural and/ or social	
,		functions and/or processes		functions and/ or processes	
		are slightly altered		are negligibly altered	
Probability	Possible	Has occurred here or	Improbable	Conceivable, but only in	
		elsewhere and could		extreme circumstances,	
		therefore occur		and/or might occur for this	
	project although this has				
	rarely been known to resul				
Confidence	A A a alicera	Data wasin ation is larger at an	A A a alliuma	elsewhere	
Confidence	Medium	Determination is based on	Medium	Determination is based on	
		common sense and general knowledge		common sense and general knowledge	
Reversibility	High	The affected	High	The affected environmental	
Reversioning	riigii	environmental will be able	riigii	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		Ninor - negative		egligible - negative	
Comment on				emptying and removal of the	
significance	above ground	containerized bio reactor pla	ant. Sludge is re	cycled within the plant system	
		oe no sludge accumulation re			
Cumulative	Without mitiga	tion this impact could result in	the groundwat	er quality being compromised.	
impacts					

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

Project Phase		Constr	uction		
Activity		Loss of habita	t 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	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	
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	Cleard	Clearance of vegetation for the construction of the dwelling and associated				
		infrastructure				
Description of	Loss of se	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.

	The folest margin:				
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	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	olative effects		

Project Phase	Construction				
Activity		Loss of secondary vegetation within endangered ecosystem			
Description of		oitat on site (within the proposed development footprint), modification of			
impact		processes, spillover effects into surrounding areas due mostly to secondary			
	impacts suc	h 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. In pile and implement an alien management plan, which highlights control ities and areas and provides a programme for long-term control. Bertake regular monitoring to detect alien invasions early so that they can be strolled, 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	9	
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	
	ļ	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 habite	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 prope	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 spread			
Mitigable	Medium	Medium Mitigation exists and will notably reduce significance of impacts			
Potential mitigation	 Reho marg good Fores biodi must retain steps spec mesic An op 	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 foing potentially eeply-sloping and are design sed 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 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	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		ll impact affects a negligible pr		e overall habitat available for
impacts	these species and will not directly affect any individuals.			

Project Phase		Constr	ruction	
Activity		Earthworks and vegetation cle	aring for const	ruction activities
Description of		on of the pond resulting in po	or water qual	ity. Destruction of vegetation
impact	around the	oond and spring.		
Mitigable	High	Mitigation exists and will notab	ly reduce sign	ificance of impacts
Potential	Pre-c	construction erect temporary fe	ncing along t	the entire green corridor and
mitigation	oper	n space to protect the pond of	as well as the	corridor from impact during
	cons	truction.		
		signage to the fence indicating		
	Site ii	Site inductions for all staff must ensure contractors and works area aware they may		
	not enter the pond and spring area.			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Low negative	0
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	Medium	Determination is based on common sense and general
		knowledge		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
				not scarce
Significance		Minor - negative		egligible - negative
Comment on significance		ral spring and pond are present		•
Significance	during the co	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	The impact v	vould result in insignificant cumu	lative effects.	
impacts				

Project Phase		Construction				
Activity		Waste F	Pollution			
Description of	Pollutio	on of buffer zones and natural are		waste generated by the		
impact	construction process.					
Mitigable	High Mitigation exists and will considerably reduce significance of impacts					
Potential		, in contained water government and are the atoming contained in the atom of an are government.				
mitigation		naged. Separation and recyclin	ng of differer	nt waste materials should be		
		oorted.				
		onstruction waste materials mus	t be collected	and disposed of at a suitable		
		te facility.				
		dumping of construction material	within natural	areas or butter zones may take		
	place • The	.e. buffer and "no-go" areas must t	ne monitored	on a weekly basis to clean-un		
		waste that may have been blow				
		quate sanitary facilities and ab				
	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					
	surro	surrounding vegetation).				
Assessment		Without mitigation		With mitigation		
Nature	Negative		Low negative			
Duration	Short term	Impact will last between 1	Brief	Impact will not last longer		
		and 5 years		than 1 year		
Extent	Very	Limited to the site and its	Very	Limited to the site and its		
	limited	immediate surroundings	limited	immediate surroundings		
Intensity	Low	Natural and/or social	Very low	Natural and/or social		
		functions and/or processes		functions and/or processes		
Due le cole ilité	Lileaber	are somewhat altered	Dame /	are slightly altered		
Probability	Likely	The impact may occur	Rare /	Conceivable, but only in extreme circumstances,		
			improbable	and/or might occur for this		
				project although this has		
				rarely been known to result		
				elsewhere		
Confidence	High	Substantive supportive data	High	Substantive supportive data		
		exists to verify the assessment		exists to verify the		
				assessment		

Reversibility	High	The affected environmental 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.	

Project Phase		Consti	ruction	
Activity		Construction	on Vehicles	
Description of impact	Po	ollution caused by the operation	of vehicles ar	nd heavy machinery.
Mitigable	High	Mitigation exists and will consid	lerably reduce	significance of impacts
Potential mitigation	 Mitigation exists and will considerably reduce significance of impacts 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. 			
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 Negligible - negative		
Comment on	Operation of vehicles could result in spillage	s or leaks of hydrocarbons (fuel and oil) and	
significance	could lead to unnecessary disturbance of natural areas.		
Cumulative	The impact would result in insignificant cumu	lative effects.	
impacts			

Disturbance of topsoil Disturbance of topsoil Description of Impact	Project Phase		Constru	ction		
Mitigation Mitigation exists and will considerably reduce the significance of impacts			Disturbance / rem	noval of topsoil		
Mitigable High Mitigation exists and will considerably reduce the significance of impacts	_		Disturbance of topsoil, potential sc	oil erosion and the	loss of topsoil	
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 allen 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 utilised for this purpose if it is without seed. Assessment Without mitigation Nature Negative Negative Negative Negative Negative Limited Without mitigation With mitigation Nature Negative Limited Limited to the site and its longer than 1 year Extent Limited Limited to the site and its longer than 1 year longer than 1 year and/or social functions and/or processes are somewhat altered Intensity Natural and/or social functions and/or processes are silightly altered Probability Almost It is most likely that the impact will Likely Negligible recertion The affected environment will only recover from the impact with significant intervention Negative Negligible resource is not damaged low processes are soil which may lead to the potential closs of topsoil through numpt and lead to the potential closs of topsoil through numpt and longer to soil can be reveved to the potential closs of topsoil through numpt and inc		High Mit	igation exists and will considerably re	educe the significa	ance of impacts	
knack-on effect on biadiversity 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.						
Negative Negative Low Negative Low Negative	mitigation	kno exp • Org foc • The • Sto sim it m • Soil mu • The pos	 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 			
Nature Negative Short Impact will last between 1 and 5 Brief Impact will not last longer than 1 years Limited Limited to the site and its immediate surroundings Limited by specific isolated parts of the site	Assassment				ith mitigation	
Duration Short term Impact will last between 1 and 5 years Limited Limited to the site and its immediate surroundings Very limited Limited to specific isolated parts of the site and/or processes are somewhat altered Natural and/or social functions and/or processes are somewhat altered Likely The impact may occur occur		Negative	Willion Hilligation		iii iiiigalioli	
Limited Limited Limited to the site and its immediate surroundings Very limited Limited to specific isolated parts of the site		Short			I	
Confidence	Extent	Limited		Very limited	Limited to specific isolated parts of the	
Confidence High Substantive supportive data exists to verify the assessment Reversibility Medium The affected environment will only recover from the impact with significant intervention Resource irreplaceability Substantive supportive data exists to verify the assessment High The affected environment will environmental will be able to recover from the impact Low The resource is not damaged irreparably or is not scarce Significance 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 Without mitigation this impact could result in potential erosion downhill of the site caused	Intensity	Low	and/or processes are somewhat	Very low	functions and/ or processes are slightly	
Reversibility Medium The affected environment will only recover from the impact with significant intervention Resource irreplaceability Significance Comment on significance Cumulative To verify the assessment High The affected environmental will be environmental will be able to recover from the impact The resource is not damaged irreparably or is not scarce Low The resource is not damaged damaged irreparably or is not scarce Negligible - negative 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. Without mitigation this impact could result in potential erosion downhill of the site caused	Probability		•	Likely	The impact may occur	
only recover from the impact with significant intervention Resource irreplaceability Significance 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 Cumulative Consult in potential erosion downhill of the site caused			to verify the assessment		data exists to verify the assessment	
irreplaceabilit y irreparably or is not scarce Significance 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 irreparably or is not scarce Negligible - negative 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.	Reversibility	Medium	only recover from the impact with significant intervention	High	environmental will be able to recover from the impact	
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 Cumulative 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.	irreplaceabilit	Low	<u> </u>	Low	damaged irreparably	
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 Cumulative 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.	Significance		Minor - negative	Negli	gible - negative	
Cumulative Without mitigation this impact could result in potential erosion downhill of the site caused	Comment on	lead to the envisaged	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			
-/	Cumulative impacts	Without mi	tigation this impact could result in po	otential erosion do	wnhill of the site caused	

Project Phase	Construction				
Activity			of groundwater		
Description of				nful chemicals. These substances	
impact	may pote	may potentially percolate into the groundwater and enter the surrounding environment			
Mitigable	High Mitic	gation exists and will considerab	oly reduce the sig	gnificance of impacts	
Mitigable 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		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 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		egligible - negative	
Comment on significance	After the im negative.	plementation of mitigation me	asures, the signif	icance becomes negligible -	
Cumulative		npact is negligible negative wit	h mitigation cur	nulative impacts to	

Construction

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		
		significance of impacts		

Project Phase

Potential mitigation	 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. Staff must be reminded that they are working within a residential area and noise levels must be 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 irreplaceability	Not relevant		Not relevant		
Significance		r - negative		legligible - negative	
Comment on significance	Some extent of noise the impact will be r		ction is exped	cted; however, with mitigation	
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	also be cleared for	building thereby increasin	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 Lof an indige and to prepareas. Implement a Implement of Implement	mitigate the colours, heige etc, which will all control ary measures be implemented at the control of the contr	al 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		ate - negative		Minor - negative
Comment on significance	The significance of	the impacts for the develo	opment layou	
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 opportunities				
Mitigable	Medium				
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	Not relevant		Not	
irreplaceability			relevant	
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 / Sen	se of place			
Description of	The development would result in a small change in visual character from a landscape					
impact	covered in veget	covered in vegetation and without buildings to a low-density well landscaped built				
	landscape.	landscape.				
Mitigable	Medium			ce significance of impacts		
Potential		by-laws need to be adhere				
mitigation			open space	areas with suitable indigenous		
	vegetation					
		removal and follow-up op				
		Architectural Design Guide		nent and the Keurboom Road.		
		land will be densely veget	•			
	· · · · · · · · · · · · · · · · · · ·			sessment (November 2023).		
Assessment		out mitigation		With mitigation		
Nature	Negative	or mingunon	Negative	Willi Hilliganon		
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		
Cantidanaa	Lliada	impact will occur	High	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	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 significance of	the impacts for the devel	opment layou	ut options is low.		
	The well positioned	d and designed developme	ont infrastruct	ture allows for it to blend in very		
				ne landscape. The alternative 2		
				age over the preferred and		
			-	density and more open space		
				with the implementation of		
				native 1 development layouts		
	can also be screer	ned effectively from the ro	ad.			
Cumulative				ecome significant if added to		
impacts	other existing or p	ootential impacts that ma	y result from	activities associated with the		
				e development layout option		
	before mitigation o	are medium and low after	mitigation.			

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	Routine maintenance inspections to clear windblow / discarded litter from the pond and spring.				
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 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						
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.

Assessment		Without mitigation	With mitigation		
Nature	Negative		Low negative	Э	
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			ned water source for wildlife in	
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-surface	e water.	
impact						
Mitigable	High	Mitigation	n exists and will considerably re	educe the significa	nce of impacts	
Potential	•	The storm	n water drainage system must	be adhered to, ar	nd 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 				
Assessment		surface flow and facilitate percolation. Without mitigation With mitigation				
Nature	Negative			Low Negative	J	
Duration	Short to	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	tion		
Activity	Stormwater Runoff				
Description of impact	Alt	eration of surface flows caused	by increased storm	water runoff.	
Mitigable	High Mitigati	on exists and will considerably re	duce the significar	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		Vithout mitigation		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	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	<u> </u>	ation this impact could result	in the water qua	ality of the dam being

Project Phase	Ope	erational				
Activity	Groundwater Contamination					
Description of impact	 Leaks and leachate from the waste Improperly treated effluent used for WWTP failure. 	 Leaks and leachate from the wastewater treatment plant. Improperly treated effluent used for irrigation. WWTP failure. 				
Mitigable	High Mitigation exists and will considerab	ly reduce the significance of impacts				
Potential mitigation	 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 manufactor of the manufa	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 construction 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	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		npact is negligible negative with er with other projects are not ar	•	ulative impacts to	

Project Phase		Operational				
Activity		Groundwater Re	charge and Floo	ding		
Description of impact	Infrastructure limiting groundwater recharge and/or flooding risk.					
Mitigable	High Mit	gation exists and will considerab	ly reduce the sig	nificance of impacts		
Potential mitigation	infr Rai Sus Rei De inc Insi	 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. 				
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 No functions and/or processes		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			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, 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	Acc	ess to forested areas during c	onstruction m	nust not be permitted by any		
mitigation		construction personnel. These areas must be fenced 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		and an artist of the second state of the secon		
		rict access to forested areas				
		ogical management plan must b	•			
	impo	 This should contain measures for pots 	r profecting in	le lorest from unave frame and		
Assessment	Шрс	Without mitigation		With mitigation		
Nature	Negative	·····iganon	Negative	·······ganon		
Duration	Long Term	Impact will last more than 15	Long Term	Impact will last more than 15		
2 0.00		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		
		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		
D	I II ada	lung in available, allowed as a constitution	Litada	exist		
Resource	High	Irreparable damage and is	High	Irreparable damage and is not represented elsewhere		
irreplaceability Significance		not represented elsewhere Minor - negative	N	legligible - negative		
Comment on	The most im	nportant ecological drivers on s				
significance		nt are related to maintenance o	•			
Significance		or maintaining forest integrity, an		· · · · · · · · · · · · · · · · · · ·		
	· ·	th of the forest ecosystem. No de				
		•		•		
Cumulative	the secondary forest on the southern margin is also excluded from development. The impact would result in insignificant cumulative effects					
impacts		3 2 2 3				

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, fragmentation of ecological infrastructure				
Mitigable	Low	Mitigation will slightly reduce th			
Potential		ing should not extend into the			
mitigation		nim 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			
		nim is to have an inter-connect		nat extends across properties,	
		d development occur in adjace		mont	
Assessment		de open-space corridors throug	l line develop		
Nature		Without mitigation	Negative	With mitigation	
Duration Duration	Negative Permanent	Impact may be permanent,	Negative Permanent	Impact may be permanent,	
Duranon	remaneni	or in excess of 20 years	remanem	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	
inicially	LOW	functions and/or processes	ricgligible	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		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	_	on type (Garden Route Shale			
significance		site on the steep slopes are cove		·	
		ma /Mesic Dune Thicket (Cowlin			
		sted as protected under the No			
	affected.	excluded from the proposed de	velopment (d	iii opiions) and are not alrectly	
	unecieu.				
	The propose	d development layout makes	provision for a	a 20m buffer along the forest	
		also incorporated portions of the			
	_	ace system within the developm	•		
Cumulative		may result in cumulative effects			
impacts		,			
	L				

Project Phase	Operation				
Activity	Eradication of Alien Vegetation				
Description of	Impacts on biodiversity / natural habitats / increased fire risk				
impact					
Mitigable	igh 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	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	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. 			
	 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. 			
	Landscaping most be done with locally occorning indigenous vegetation.			

Assessment	Without 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	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	gh Mitigation exists and will considerably reduce the significance of impacts			
Potential mitigation	 Assign an Estate maintenance manager responsible for daily inspections of the 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	Without mitigation With mitigation			
Nature	egative Low Negative			

Duration	Brief	Impact will not last longer than 1 year	Brief Impact will not last longe 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	Mo	Moderate - negative Negligible - 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	Decommissioning					
Activity			ige Plant			
Description of	Decommission			ential pollution of surface and		
impact	groundwater s	groundwater sources, soil contamination, and health and safety risks.				
Mitigable	High Mitigati	on exists and will considerably	reduce the sig	nificance of impacts		
Potential	Empty	and clean tanks before disma	ıntling.			
mitigation	Remove	Remove all sludge and residue with certified disposal contractors.				
		ct soil testing before and after	r decommission	ing.		
		PPE and training for workers.				
		safe dismantling procedures.				
		e and follow a Health and Saf				
			to municipal :	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		
	1 1	and 2 years	> / P 11 1	than 1 year		
Extent	Local	Extending across the site	Very limited	Limited to specific isolated		
Indonesia.	Lave	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		
Probability	Possible	are slightly altered Has occurred here or	Improbable	are negligibly altered Conceivable, but only in		
Flobability	FOSSIDIE	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					
Resource	Negligible	No loss of resources	Negligible	No loss of resources		
irreplaceability						
Significance		Ninor - negative		egligible - negative		
Comment on				emptying and removal of the		
significance	_	•	_	ecycled within the plant system		
	and there will be no sludge accumulation requiring removal on decommissioning.					
Cumulative	Without mitiga	tion this impact could result in	the groundwat	er quality being compromised.		
impacts						

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 form of offset or conservation servitude can be considered.				
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	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 proce 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	• • • • • • • • • • • • • • • • • • • •		
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		
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	Clear	Clearance of vegetation for the construction of the dwelling and associated infrastructure				
		iniidsiiociore				
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	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.

	The forest margin.				
Assessment		Without mitigation	With mitigation		
Nature	Negative		Low negative	Э	
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 process 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	Il 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		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 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 p	processes, spillover effects into surrounding areas due mostly to secondary		
	impacts suc	h 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	ess to forested areas during construction must not be permitted by any truction personnel. These areas must be fenced off and no access allowed. In an alien management plan, which highlights control lities and areas and provides a programme for long-term control. Pertake regular monitoring to detect alien invasions early so that they can be rolled, 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	ргоп	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	areas of the for Southern protected u forested are and are not The only rem on the basis is legally cor is, however, considered Additional vegetation may offset to	site on the steep slopes are covered Afrotemperate Forest, which is natural representation of the National Forests Act. The as are completely excluded from directly affected. Inaining non-forest vegetation on that no legal soil disturbance has idered to be natural vegetation not representative of this vegeto be irreplaceable. Private Open Space will not as it will be in the transformed/legal and the steep of the ste	Fynbos) is listed as Endangered. All upland vered with forest that matches the description is not threatened, but is separately listed as ne forest areas on site fall within a CBA1. These of the proposed development (both options) in site is considered to be secondary. However, as occurred during the preceding 10 years, it can that is within an Endangered ecosystem. It getation unit and, being secondary, is not it significantly mitigate the disturbance of valued areas. Rehabilitation of these areas me additional secondary vegetation near the		
Cumulative impacts		would result in insignificant cumu			

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	Mitigation exists and will notably reduce significance of impacts			
Potential	 Retai 	n existing large trees within proposed development.			
mitigation		trees need to be removed or pruned then a permit is required, according a 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	Э	
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	A total of 4 in is widesprea Route. Additional Pr species as it	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 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 spread				
Mitigable	Medium	Mitigation exists and will notably reduce significance of impacts				
Potential mitigation	spread.					

species, such as Pterocela	astrus tricuspidatus	and	Sideroxylon	inerme,	that	are
mesic and fire-resistant.						

• An open space management system should be developed to formalize steps for forest protection.

	torest 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,	
Extent	Limited	Limited to the site and its	Von	or in excess of 20 years Limited to the site and its	
Extent	Limiled	immediate surroundings	Very limited	immediate surroundings	
Intensity	High	Natural and/ or social	Low	Natural and/or social	
illicitally	Tilgii	functions and/ or processes	LOVV	functions and/or processes	
		are significantly 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	
Day care ile iliby	Double	knowledge	Dough	knowledge	
Reversibility	Partly reversible	The impact is reversible but more intense mitigation	Partly reversible	The impact is reversible but more intense mitigation	
	reversible	measures are required	reversible	measures are required	
Resource	Low	The resource is not damaged	Low	The resource is not	
irreplaceability		irreparably or is not scarce	LOW	damaged irreparably or is	
mepiaecabiiiiy		inoparably of is not scarce		not scarce	
Significance		egligible - negative		egligible - negative	
Comment on		is habitat on site that is suspect			
significance		es. This is the forest habitat, wh			
		rint and will not be affected by			
		pecies that could potentially oc			
	0	forest margin areas.	nas a modera	ate probability of occurring in	
	0	•	aned) the fore	ests on site may constitute part	
				y that they are resident on site,	
		or are dependent on it.	201111301111101	, marmo, are resident en site,	
	0	·	angered). The	type locality of the species is	
	forest habitats in the Keurboomstrand area.				
	o Small antelope (Vulnerable). There is a moderate to high probability of it				
		occurring in the forests on site			
	Addit	ional Private Open Space will r	not significantl	ly mitigate the disturbance of	
		at as it will be in the transformed		s. Rehabilitation of these areas	
		offset loss of habitat in secondar			
Cumulative		I impact affects a negligible pro		e overall habitat available for	
impacts	these species and will not directly affect any individuals.				

Project Phase		Construction				
Activity		Waste Pollution				
Description of	Pollutic	Pollution 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	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	Willion Hilligation	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		legligible - 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 pollute the environment.				
Cumulative impacts	The impact	would result in insignificant cumu	ulative effects.		

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 co			
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			·			
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	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	The impact would result in insignificant cumulative effects.					

Project Phase		Constru	ction			
Activity		Disturbance / removal of topsoil				
Description of		Disturbance of topsoil, potential sc	il erosion and the loss of topsoil			
impact						
Mitigable	High	Mitigation exists and will considerably re	duce the significance of impacts			
Potential mitigation	•	pipelines) should be suitably rehabilitate a knock-on effect on biodiversity in the exposure and a loss of the soil micro-org Organic matter, such as roots and he footprint of structures and stockpiled set. The stockpiling of topsoil for use in rehabilitation of the stockpiles must not exceed 1.5m in heigh similar, to prevent erosion and any invasit must be removed. Soil disturbance during the removal of a much as possible. The site must be stabilised where necessions.	ganisms that are essential for plant growth. Jumus/topsoil should be removed from the parately for landscaping purposes. Joilitation is required. John, must be covered with shade cloth or John, must be covered with shade cloth or John, must be gin to grow within John with the plants must be minimised as John with the plants are covered with wood chips, and John with the plants are covered with wood chips, and John with the plants are covered with wood chips, and John with the plant growth. John William			
Assessment		Without mitigation	With mitigation			
Nature	Nega		Low Negative			

Duration	Short term	Impact will last between 1 and 5 years	Brief	Impact will not last longer than 1 year		
Extent	Limited	Limited to the site and its immediate surroundings	Very limited	Limited to specific isolated parts of the site		
Intensity	Low	Natural and/or social functions and/or processes are somewhat altered	Very low	Natural and/ or social functions and/ or processes are slightly altered		
Probability	Almost certain	It is most likely that the impact will occur	Likely	The impact may occur		
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment		
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	High	The affected environmental will be able to recover from the impact		
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce		
Significance		Minor - negative		ible - 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		Cor	nstruction				
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	ly reduce the sigr	nificance of impacts			
Potential mitigation	 Instantion Special Act, Guice Site in spillor Seponsite of the control of the con	III the sewage and and wastew onal SANS standards (SANS1200	rater infrastructured Part K:Civil Engine Part Construction of Part Regulations & by Part Part Part Part Part Part Part Part	e according to applicable eering Standard plations and Building Standards of Sanitation Systems), DWS y-laws. ges and if detected, contact to prevent spills and possible and and other powders. The y-ay from waterways or so during construction water, and dispose of ations.			
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	Limited	Limited to the site and its			
Indoneth.	Love	and to nearby settlements	Monulovy	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 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 significance becomes negligible - negative.						
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 impact	Noise caused by machinery and staff						
Mitigable	Low	Mitigation does not exist significance of impacts	; or mitigatior	n will slightly reduce the			
Potential mitigation	 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. Staff must be reminded that they are working within a residential area and noise levels must be kept low. 						
Assessment	Witho	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 - negative	Negligible - negative				
Comment on	Some extent of noise pollution during construction is expected; however, with mitiga					
significance	the impact will be reduced.					
Cumulative	No cumulative impacts exist.					
impacts						

Project Phase	Construction					
Activity	Visual impact					
Description of impact	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 redu	ce significance of impacts		
Potential mitigation	 The Architectural Design Guidelines proposed for the development must be adopted to mitigate the colours, heights, disturbance areas, maximum footprint, vegetation, etc, which will all contribute to a smaller visual impact on the landscape. The necessary measures be implemented during the construction phase to protect the natural vegetation, to control the noise, dust and visual intrusion. Appoint a Landscape consultant to recommend and implement the introduction of an indigenous 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. 					
Assessment		ut mitigation		sessment (November 2023). With mitigation		
Nature	Negative	J	Negative	94		
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 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	Mitigation only exists to e through.	nsure that the	e positive impact is followed		
Potential	 Use existing 	social structures and co	ommunicatio	n channels to ensure social		
mitigation	representation	on.				
		our and source local mate	erials as far a			
Assessment		ıt mitigation		With mitigation		
Nature	Negative		Positive			
Duration	Short term	Impact will last	Short term	Impact will last between 1		
		between 1 and 5 years		and 5 years		
Extent	Local	Extending across the site and to nearby 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			
Significance		ole - negative		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 Alternative 2 (19 Residential Stands):

Project Phase	Operational			
Activity		Visual / Sense of place		
Description of impact	The development would result in a small change in visual character from a landscape 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 mitigation	Municipal by-laws need to be adhered to.			

	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. 				
	 Adhere to Architectural Design Guidelines and Landscape Flan. Create a 10m wide buffer between the development and the Keurboom Road. 				
	This strip of land will be densely vegetated to obscure the development.				
	Implement mitigations as per the Visual 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	ıte - 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.				
	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 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 impacts	other existing or proposed develop	otential impacts that ma	y result from npacts of the	ecome significant if added to activities associated with the e development layout option	

Project Phase	Operation				
Activity	Stormwater Management				
Description of	Accelerated erosion / pollution into sub-surface water.				
impact					
Mitigable	High Mitigation exists and will considerably reduce the significance of impacts				
Potential	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				
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	Minor - negative Negligible - 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		Opero	ıtion			
Activity	Stormwater Runoff					
Description of impact	A	Alteration of surface flows caused by increased stormwater runoff.				
Mitigable	High Mitiga	ion exists and will considerably re	educe the significa	nce of impacts		
Potential mitigation	Stormy into re into re The ruldische Stormy and of The not the op No sto	 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.). 				
Assessment	Without mitigation With mitigation			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	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	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		ble - 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		ation this impact could result	in the water qua	ality of the dam being

Drain of Dhann	Operational			
Project Phase	Operational Operational			
Activity	Groundwater 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. 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
 remediated in consultation with a contamination remediation consultant and the
 Authorities.

	remediated in consultation with a contamination remediation consultant and the				
	Authorities.				
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 Recharge and Flooding			
Description of impact		Infrastructure limiting grounds	vater recharge ai	nd/or flooding risk.	
Mitigable	High Mitig	gation exists and will consideral	oly reduce the sig	nificance of impacts	
Potential mitigation	infra Rain Susta Rete Desi inco Insta Inspa	neable pavement and green in structure as far as possible. water Harvesting ainable Urban Drainage System ention and Detention Basins agn stormwater drainage system rporating overflow pathways, sullation of piezometers to track ect and maintain drainage system ures. site levels must be designed su evel of the Road 394, the existi	ns (SUDS) ns to handle incre sump pumps, and groundwater leve tems, stormwater	eased rainfall events by I flow control structures. el. infrastructure, and mitigation evels will all be set higher than	
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 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	Negligible - negative Negligible - negative				
Comment on significance	After the implementation of mitigation measures, the consequence becomes negligible, and the significance remains as negligible - negative.				
Cumulative impacts	Since the impact is negligible negative with mitigation, cumulative impacts to groundwater with other projects are not anticipated.				

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 ed	cosystems.	
Mitigable	Medium	Mitigation will reduce the signif	icance of imp	pacts
Potential	Acce	ess to forested areas during c	onstruction m	oust not be permitted by any
mitigation		struction personnel. These areas i		
		ppile 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 tr	ne forest from unaue fraffic and
Assessment	Шрс	Without mitigation		With mitigation
Nature	Negative	Willioo Hilligation	Negative	
Duration	Long Term	Impact will last more than 15	Long Term	Impact will last more than 15
		years	Ü	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
Passuras	High	Irroparable damage and is	High	exist
Resource irreplaceability	High	Irreparable damage and is not represented elsewhere	піўп	Irreparable damage and is not represented elsewhere
Significance		Minor - negative	N	
significance		Millor - negative	N	legligible - 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
	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.
Cumulative	The impact would result in insignificant cumulative effects
impacts	

Project Phase	Operation				
Activity		Impacts on eco			
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	the aim is to have an inter-connected corridor that extends across properties,				
	should development occur in adjacent areas.				
		clearVu fencing to separate the			
		g must be incorporated into th			
		als (cats and dogs, etc) out of the			
		ing should not extend into the caim is to have an inter-connect			
		d development occur in adjace		idi exterias across properties,	
		de open-space corridors throug		ment	
Assessment	¥ 11001	Without mitigation	Trific develop	With mitigation	
Nature	Negative	Williou Hilligation	Negative	Willi Hilligation	
Duration	Permanent	Impact may be permanent,	Permanent	Impact may be permanent,	
Doranon	1 diffidition	or in excess of 20 years	1 diffidition	or in excess of 20 years	
Extent	Limited	Limited to the site and its	Limited	Limited to the site and its	
		immediate surroundings	2	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	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	
Ci annifi a ann a a		is not scarce	N.	not scarce	
Significance	Minor - negative Negligible - negative				
Comment on significance	The vegetation type (Garden Route Shale Fynbos) is listed as Endangered. All upland				
significance	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 proposed development layout makes provision for a 20m buffer along the forest				
	margin and also incorporated portions of the secondary vegetation area to form part of				
	the open space system within the development, which will link up with the forest area.				
Cumulative	The impact may result in cumulative effects through the landscape.				
impacts					

Project Phase	Operation				
Activity	Eradication of Alien Vegetation				
Description of impact	Impacts on biodiversity / natural habitats / increased fire risk				
Mitigable	High	Mitigation exists and will o	considerably re	educe significance of impacts	
Potential mitigation	 High Mitigation exists and will considerably reduce significance of impacts 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		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	Not relevant		Not		
irreplaceability					
Significance		<mark>ite - negative</mark>		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	Without 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	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 mitigation	 Assign an Estate maintenance manager responsible for daily inspections of the 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. Without mitigation With mitigation Assessment Nature Negative Low Negative Duration Brief Impact will not last longer Brief Impact will not last longer than 1 year than 1 year Limited to the site and its Very limited Limited to specific isolated Extent Limited immediate surroundings parts of the site Natural and/or social Intensity Medium Low
- Natural and/or social functions and/or processes functions and/or processes are notably altered are slightly altered Probability Has occurred here or Conceivable, but only in Possible Improbable elsewhere and could 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 environmental High The affected environmental will be able will be able to recover from to recover from the the impact impact Negligible No loss of resources Negligible Resource No loss of resources irreplaceability Significance Moderate - negative Negligible - negative The implementation of the proposed mitigation measures will significantly reduce the Comment on significance likelihood and severity of operational failures, environmental contamination, and service disruptions associated with the sewage package plant. Without mitigation this impact could result in the groundwater quality being compromised. Cumulative impacts

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

Project Phase	Decommissioning				
Activity		Package Plant			
Description of	Decommissioning of the package plant resulting in potential pollution of surface and				
impact	groundwater sources, soil contamination, and health and safety risks.				
Mitigable		on exists and will considerably			
Potential		and clean tanks before disma		la constant de la con	
mitigation		e all sludge and residue with a	•	al contractors.	
	 Conduct soil testing before and after decommissioning. 				
	Provide PPE and training for workers.				
	Follow safe dismantling procedures.				
			to municipal	sewer connections to prevent	
		health issues.			
Assessment		ithout mitigation		With mitigation	
Nature	Negative	I	Low Negative		
Duration	Short term	Impact will last between 1	Brief	Impact will not last longer	
Fortend	Lagari	and 2 years	Man Himita al	than 1 year	
Extent	Local	Extending across the site	Very limited	Limited to specific isolated	
Intensity	Low	and to nearby settlements Natural and/or social	Negligible	parts of the site Natural and/ or social	
intensity	LOW	functions and/or processes	Negligible	functions and/ or processes	
		are slightly altered		are negligibly altered	
Probability	Possible	Has occurred here or	Improbable	Conceivable, but only in	
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		elsewhere and could		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 g				
		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	
Descures	Negligible	impact No loss of resources	Negligible	No loss of resources	
Resource irreplaceability	Negligible	INO IOSS OF TESOURCES	Negligible	No loss of resources	
Significance	Minor - negative Negligible - 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				
Jigiiiicanee	and there will be no sludge accumulation requiring removal on decommissioning.				
Cumulative	Without mitigation this impact could result in the groundwater quality being compromised.				
impacts					
	II.				