



IMPACT AND RISK ASSESSMENT

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

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

Nature of the impact

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

Extent of the impact

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

Duration of the impact

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

Intensity

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

Probability of occurrence

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

Reversibility

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

Irreplaceable loss of resources

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

Cumulative effect

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

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

Significance

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

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



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

Project Phase	Construction			
Impact	Clearance of vegetation for the construction of the dwelling, accommodation units, and associated infrastructure			
Description of impact	Loss of indigenous vegetation, and habitat loss for terrestrial wildlife.			
Mitigable	Medium	Mitigation exists and will notably reduce significance of impacts		
Potential mitigation	<ul style="list-style-type: none"> • Areas to be developed/disturbed must be specifically demarcated so that during the construction phase, only the demarcated areas be impacted upon. • Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, should not be fragmented or disturbed further. • All landscaping must comprise of flora species indigenous to the region. The sole use of exotics and the planting of NEMBA listed Alien Invasive Plants is prohibited. • 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. 			
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	Low	Natural and/or social functions and/or processes are somewhat altered	Very low	Natural and/or social functions and/or processes are slightly altered
Probability	Certain / Definite	There are sound scientific reasons to expect that the impact will definitely occur	Probable	Has occurred here or elsewhere and could therefore occur
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	High	The affected environment 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 location, ecological state, and size of the habitats within the Project Area denotes that it is unlikely that any functional habitat or SCC will be lost as a result of the impacts arising from the proposed development. Landscaping with indigenous plant species will contribute towards a potential positive biodiversity gain.			
Cumulative impacts	The impact would result in insignificant cumulative effects			

Project Phase	Construction			
Impact	Disturbance to fauna and fragmentation of habitats			
Description of impact	Cut-off of natural dispersal and foraging movement by animals, fragmentation of ecological infrastructure, secondary impacts to wildlife such as noise and lighting.			
Mitigable	Medium	Mitigation exists and will notably reduce significance of impacts		
Potential mitigation	<ul style="list-style-type: none"> Where fencing is required, wildlife gaps in the perimeter fence must be installed at appropriate intervals and be of a suitable dimension to allow for the movement of small animals. In situations fauna species are located at the site and need to be removed, the relevant specialists must be contacted to advise on how the species can be relocated. The areas to be disturbed must be specifically demarcated to prevent the movement of staff or any individual into the surrounding environments, barrier tape must be put up to enforce this. Noise must be kept to an absolute minimum during the evenings and at night to minimise all possible disturbances to nocturnal species which are more dependent on auditory signals for life processes. No trapping, killing, or poisoning of any wildlife is to be allowed and Signs must be put up to enforce this. Monitoring must take place in this regard. Outside lighting should be designed and limited to minimise impacts on fauna. All outside lighting should be directed away from any sensitive areas. Fluorescent and mercury vapor lighting should be avoided, and sodium vapor (green/red) lights should be used wherever possible. Any holes/deep excavations must be dug in a progressive manner and shouldn't be left open overnight. Should any holes remain open overnight they must be properly covered temporarily to ensure that no small fauna species fall in. Holes must be subsequently inspected for fauna prior to backfilling. 			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Low negative	
Duration	Permanent	Impact may be permanent, 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	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	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		Negligible - negative	
Comment on significance	Habitat is heavily degraded and modified with high anthropogenic activity in close proximity to the majority of the Project Area. No SCC were recorded, nor expected.			
Cumulative impacts	The potential impact affects a negligible proportion of the overall habitat available for wildlife.			

Project Phase	Construction			
Impact	Waste Pollution			
Description of impact	Pollution of buffer zone and natural areas caused by waste generated by the construction process.			
Mitigable	High	Mitigation exists and will considerably reduce significance of impacts		
Potential mitigation	<ul style="list-style-type: none"> Waste management must be a priority and all waste must be collected and stored effectively and responsibly. Refuse bins will be responsibly emptied and secured. Temporary storage of domestic waste shall be in covered and secured waste skips. Dangerous waste such as metal wires and glass must be safely stored before being moved off site as soon as possible. Under no circumstances may domestic waste be burned on site or buried on open pits. Separation and recycling of different waste materials should be supported. Litter, spills, fuels, chemical and human waste in and around the Project Area must be minimised and controlled. Cement mixing may not be performed on the ground. It is recommended that only closed side drum or pan type concrete mixers be utilised. Any spills must be immediately contained and isolated from the natural environment, before being removed from site. Toilets at the recommended Health and Safety standards must be provided. Portable toilets must be emptied regularly to prevent overflow. Once no longer required, they must be pumped dry to prevent leakage into the surrounding environment and removed from site. Where a registered disposal facility is not available close to the Project Area, the Contractor shall provide a method statement with regards to waste management. 			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Low negative	
Duration	Short term	Impact will last between 1 and 5 years	Brief	Impact will not last longer than 1 year
Extent	Very limited	Limited to the site and its immediate surroundings	Very limited	Limited to the site and its immediate surroundings
Intensity	Low	Natural and/or social functions and/or processes are somewhat altered	Very low	Natural and/or social functions and/or processes are slightly altered
Probability	Likely	The impact may occur	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
Reversibility	High	The affected environmental will be able to recover from the impact	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Negligible - negative		Negligible - negative	
Comment on significance	Construction activities are likely to generate significant quantities of solid waste that could pollute the buffer zone and natural areas.			
Cumulative impacts	The impact would result in insignificant cumulative effects.			

Project Phase	Construction			
Impact	Construction Vehicles			
Description of impact	Pollution caused by the operation of vehicles and heavy machinery.			
Mitigable	High	Mitigation exists and will considerably reduce significance of impacts		
Potential mitigation	<ul style="list-style-type: none"> 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. 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	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 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	Construction			
Impact	Erosion Management			
Description of impact	Potential erosion during clearance of the site and increased stormwater runoff			
Mitigable	High	Mitigation exists and will considerably reduce the significance of impacts		
Potential mitigation	<ul style="list-style-type: none"> • Ensure that construction activities do not cause any preferential flow paths and concentrated surface runoff during rainfall events. • Clearly demarcate the construction area and ensure that heavy machinery does not compact soil or disturb vegetation outside of these demarcated areas. • Reduce transport of sediment through use of structures such as silt fences and biodegradable coir logs placed along a contour below the development footprint. • Ensure that vegetation clearing is conducted in parallel with the construction progress to minimise erosion and runoff. • Revegetate exposed areas once construction has been completed. • Ensure that stormwater and runoff generated by hardened surfaces is discharged in retention areas (i.e. swales or retention ponds), to avoid concentrated runoff and associated erosion. 			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Low Negative	
Duration	Short term	Impact will last between 1 and 5 years	Brief	Impact will not last longer than 1 year
Extent	Limited	Limited to the site and its immediate surroundings	Very limited	Limited to specific isolated parts of the site
Intensity	Low	Natural and/or social functions and/or processes are somewhat altered	Very low	Natural and/ or social functions and/ or processes are slightly altered
Probability	Almost certain	It is most likely that the impact will occur	Likely	The impact may occur
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Minor - negative		Negligible - negative	
Comment on significance	Steep slopes on the property will be vulnerable to erosion during clearance of the site and the construction phase. It is therefore important that appropriate erosion control measures are implemented.			
Cumulative impacts	Without mitigation this impact could result in potential erosion on site caused by stormwater.			

Project Phase	Construction			
Impact	Disturbance / removal of topsoil			
Description of impact	Disturbance of topsoil, potential soil erosion and the loss of topsoil			
Mitigable	High	Mitigation exists and will considerably reduce the significance of impacts		
Potential mitigation	<ul style="list-style-type: none"> • 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 utilised for this purpose if it is without seed. 			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Low Negative	
Duration	Short term	Impact will last between 1 and 5 years	Brief	Impact will not last longer than 1 year
Extent	Limited	Limited to the site and its immediate surroundings	Very limited	Limited to specific isolated parts of the site
Intensity	Low	Natural and/or social functions and/or processes are somewhat altered	Very low	Natural and/ or social functions and/ or processes are slightly altered
Probability	Almost certain	It is most likely that the impact will occur	Likely	The impact may occur
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Negligible - negative		Minor - negative	
Comment on significance	Clearing areas of the site in preparation for construction will expose bare soil which may lead to the potential loss of topsoil through runoff and incorrect storage. This is not envisaged to be a significant impact with mitigation measures in place. Topsoil can be reused on site for rehabilitation purposes.			
Cumulative impacts	Without mitigation this impact could result in potential erosion on the site caused by stormwater flow.			

Project Phase	Construction			
Impact	Noise 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	<ul style="list-style-type: none"> 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	Without mitigation		With mitigation	
Nature	Negative		Negative	
Duration	Brief	Impact will not last longer than 1 year	Brief	Impact will not last longer than 1 year
Extent	Limited	Limited to the site and its immediate surroundings	Limited	Limited to the site and its immediate surroundings
Intensity	Very low	Natural and/ or social functions and/ or processes are slightly altered	Negligible	Natural and/ or social functions and/ or processes are negligibly altered
Probability	Almost certain / Highly probable	It is most likely that the impact will occur	Almost certain / Highly probable	It is most likely that the impact will occur
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	High	The affected environmental will be able to recover from the impact	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Not relevant		Not relevant	
Significance	Minor - negative		Negligible - negative	
Comment on significance	Some extent of noise pollution during construction is expected; however, with mitigation the impact will be reduced.			
Cumulative impacts	No cumulative impacts exist.			

Project Phase	Construction			
Impact	Visual impact			
Description of impact	Visual & aesthetic consequences of the proposed project			
Mitigable	Medium	Mitigation exists and will notably reduce significance of impacts		
Potential mitigation	<ul style="list-style-type: none"> The necessary measures be implemented during the construction phase to protect the natural vegetation, to control the noise, dust and visual intrusion. The potential visual impacts and proposed mitigation thereof must be undertaken by a professionally registered landscape architect that must be part of the design team (including engineers and architects). The brief of the landscape architect (LA) must include: <ul style="list-style-type: none"> The LA must consult with both engineers and architects to ensure that sensitive earthwork and building design development occurs, which will allow for reducing the construction and operation phase visual impacts. The LA must work with the project surveyor, arborist and planners in establishing which trees are to remain on site for visual screening and taking this information into the design development of the civil and building works. 			

	<ul style="list-style-type: none"> o The LA must prepare a landscape plan, design development thereof and monitoring implementation and thereafter maintenance. The plan must include the tree survey and what trees are, what indigenous vegetation is, to be retained, what is to be removed, the planting of indigenous trees, new trees and shrub planting along roadways and in open spaces in the built areas and a guideline document for private gardens within the development. 			
Assessment	Without 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	Certain / Definite	There are sound scientific reasons to expect that the impact will definitely 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 environment will be able to recover from the impact
Resource irreplaceability	Not relevant		Not relevant	
Significance	Minor - negative		Negligible - negative	
Comment on significance	The proposal is sensitive towards the character of the area and attempts to create a unique sense of place that will blend in and compliment the ambience of the surrounding area.			
Cumulative impacts	No cumulative impacts exist.			

Project Phase	Construction			
Impact	Employment			
Description of impact	Empowerment of the local community members living in the area relating to temporary employment opportunities			
Mitigable	Medium	Mitigation only exists to ensure that the positive impact is followed through.		
Potential mitigation	<ul style="list-style-type: none"> • Use existing social structures and communication channels to ensure social representation. • Use local labour and source local materials as far as possible. 			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Positive	
Duration	Short term	Impact will last between 1 and 5 years	Short term	Impact will last between 1 and 5 years
Extent	Local	Extending across the site and to nearby settlements	Local	Extending across the site and to nearby settlements
Intensity	Low	Natural and/ or social functions and/ or processes are somewhat altered	Low	Natural and/ or social functions and/ or processes are somewhat altered

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

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

Project Phase	Operation			
Impact	Visual / Sense of place			
Description of impact	Visual impacts of structures / aesthetic consequences due to incorrect or excessive lighting, especially outdoor lighting			
Mitigable	Medium	Mitigation exists and will notably reduce significance of impacts		
Potential mitigation	<ul style="list-style-type: none"> • 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 the Landscape Plan. • Outside lighting should be designed and limited to minimise impacts on fauna. All outside lighting should be directed away from any sensitive areas. Fluorescent and mercury vapor lighting should be avoided, and sodium vapor (green/red) lights should be used wherever possible 			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative Low	
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Medium Term	Impact will last between 5 and 15 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	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	Medium	The affected environment will only recover from the impact with significant intervention	High	The affected environment will be able to recover from the impact
Resource irreplaceability	Not relevant		Not relevant	
Significance	Minor - negative		Negligible - negative	
Comment on significance	Lighting, specifically outdoor lighting is not only aesthetic, but it provides a level of security to property owners. Therefore, outdoor lighting is essential, but should be implemented in a way which does not cause negative impacts to neighbours.			
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	
Impact	Stormwater Management	
Description of impact	Accelerated erosion / pollution into sub-surface water.	
Mitigable	High	Mitigation exists and will considerably reduce the significance of impacts

Potential mitigation	<ul style="list-style-type: none"> • A sustainable stormwater design must be implemented to prevent excessive run-off that will lead to erosion of the surrounding landscape. • Stormwater generated on site should be managed according to Sustainable Drainage System (SuDS) principles. This requires that as much stormwater as possible should be attenuated within the development footprint. The following measures, <i>inter alia</i>, should be considered: <ul style="list-style-type: none"> ○ Rainwater harvesting tanks must be installed; ○ Use of swales and detention ponds to attenuate stormwater runoff, encourage infiltration and reduce the speed, energy and volumes at which stormwater is discharged from the site; ○ Use of permeable paving to encourage infiltration into the soil; and ○ Use of retention ponds and artificial wetlands to capture stormwater runoff and prevent its discharge from the 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	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 environment will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Negligible - negative		Minor - negative	
Comment on significance	A key impact related to residential developments is the generation of large volumes of stormwater associated with an increased area of impermeable surfaces (i.e. roads, roofs and other infrastructure). Stormwater is typically conveyed into watercourses, where high volumes (and associated high energy) cause degradation of watercourses, mainly due to the erosion of the bed and banks. In this respect given the steep slopes within the property, even though the drainage line is located outside of the development footprint, it is potentially vulnerable to stormwater impacts.			
Cumulative impacts	Without mitigation this impact could result in potential erosion on the site caused by stormwater flow.			

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

Potential mitigation	<ul style="list-style-type: none"> 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. An Alien Control Plan should be implemented to systematically remove and control alien plant species. Follow-up operations must be done. Minimise disturbance to the natural vegetation using low impact manual labour techniques. Reduce fire hazard on site. 			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Positive	
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Brief	Impact will not last longer than 1 year
Extent	Limited	Limited to the site and its immediate surroundings	Limited	Limited to the site and its immediate surroundings
Intensity	Medium	Natural and/or social functions and/or processes are notably altered	Medium	Natural and/or social functions and/or processes are notably altered
Probability	Certain / Definite	There are sound scientific reasons to expect that the impact will definitely occur	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	Low	The affected environment will not be able to recover from the impact - permanently modified	Medium	The affected environment will only recover from the impact with significant intervention
Resource irreplaceability	Not relevant		Not relevant	
Significance	Moderate - negative		Moderate - positive	
Comment on significance	An approved AIP Control Plan is in place, and much of the property has already been legally eradicated of AIP. The control of AIP on the property has a positive impact on biodiversity.			
Cumulative impacts	Without mitigation this impact could result in the spread of alien invasive plants and the loss of indigenous vegetation.			

Project Phase	Operation	
Impact	Landscaping	
Description of impact	Habitat loss for terrestrial wildlife, fragmentation of ecological corridor	
Mitigable	Low	Mitigation will slightly reduce the significance of impacts
Potential mitigation	<ul style="list-style-type: none"> The Landscape Plan must be implemented and adhered to. 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. All landscaping must comprise of flora species indigenous to the region. The sole use of exotics and the planting of NEMBA listed Alien Invasive Plants is prohibited. 	
Assessment	Without 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.			

Impacts foreseen during the Construction Phase for Alternative 2:

Project Phase	Construction			
Impact	Clearance of vegetation for the construction of the dwelling, accommodation units, and associated infrastructure			
Description of impact	Loss of indigenous vegetation, and habitat loss for terrestrial wildlife.			
Mitigable	Medium	Mitigation exists and will notably reduce significance of impacts		
Potential mitigation	<ul style="list-style-type: none"> • Areas to be developed/disturbed must be specifically demarcated so that during the construction phase, only the demarcated areas be impacted upon. • Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, should not be fragmented or disturbed further. • All landscaping must comprise of flora species indigenous to the region. The sole use of exotics and the planting of NEMBA listed Alien Invasive Plants is prohibited. • 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. 			
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	Low	Natural and/or social functions and/or processes are somewhat altered	Very low	Natural and/or social functions and/or processes are slightly altered
Probability	Certain / Definite	There are sound scientific reasons to expect that the impact will definitely occur	Probable	Has occurred here or elsewhere and could therefore occur
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Minor - negative		Negligible - negative	
Comment on significance	The location, ecological state, and size of the habitats within the Project Area denotes that it is unlikely that any functional habitat or SCC will be lost as a result of the impacts arising from the proposed development. Landscaping with indigenous plant species will contribute towards a potential positive biodiversity gain.			
Cumulative impacts	The impact would result in insignificant cumulative effects			

Project Phase	Construction			
Impact	Disturbance to fauna and fragmentation of habitats			
Description of impact	Cut-off of natural dispersal and foraging movement by animals, fragmentation of ecological infrastructure, secondary impacts to wildlife such as noise and lighting.			
Mitigable	Medium	Mitigation exists and will notably reduce significance of impacts		
Potential mitigation	<ul style="list-style-type: none"> Where fencing is required, wildlife gaps in the perimeter fence must be installed at appropriate intervals and be of a suitable dimension to allow for the movement of small animals. In situations fauna species are located at the site and need to be removed, the relevant specialists must be contacted to advise on how the species can be relocated. The areas to be disturbed must be specifically demarcated to prevent the movement of staff or any individual into the surrounding environments, barrier tape must be put up to enforce this. Noise must be kept to an absolute minimum during the evenings and at night to minimise all possible disturbances to nocturnal species which are more dependent on auditory signals for life processes. No trapping, killing, or poisoning of any wildlife is to be allowed and Signs must be put up to enforce this. Monitoring must take place in this regard. Outside lighting should be designed and limited to minimise impacts on fauna. All outside lighting should be directed away from any sensitive areas. Fluorescent and mercury vapor lighting should be avoided, and sodium vapor (green/red) lights should be used wherever possible. Any holes/deep excavations must be dug in a progressive manner and shouldn't be left open overnight. Should any holes remain open overnight they must be properly covered temporarily to ensure that no small fauna species fall in. Holes must be subsequently inspected for fauna prior to backfilling. 			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Low negative	
Duration	Permanent	Impact may be permanent, 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	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	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		Negligible - negative	
Comment on significance	Habitat is heavily degraded and modified with high anthropogenic activity in close proximity to the majority of the Project Area. No SCC were recorded, nor expected.			
Cumulative impacts	The potential impact affects a negligible proportion of the overall habitat available for wildlife.			

Project Phase	Construction			
Impact	Waste Pollution			
Description of impact	Pollution of buffer zone and natural areas caused by waste generated by the construction process.			
Mitigable	High	Mitigation exists and will considerably reduce significance of impacts		
Potential mitigation	<ul style="list-style-type: none"> Waste management must be a priority and all waste must be collected and stored effectively and responsibly. Refuse bins will be responsibly emptied and secured. Temporary storage of domestic waste shall be in covered and secured waste skips. Dangerous waste such as metal wires and glass must be safely stored before being moved off site as soon as possible. Under no circumstances may domestic waste be burned on site or buried on open pits. Separation and recycling of different waste materials should be supported. Litter, spills, fuels, chemical and human waste in and around the Project Area must be minimised and controlled. Cement mixing may not be performed on the ground. It is recommended that only closed side drum or pan type concrete mixers be utilised. Any spills must be immediately contained and isolated from the natural environment, before being removed from site. Toilets at the recommended Health and Safety standards must be provided. Portable toilets must be emptied regularly to prevent overflow. Once no longer required, they must be pumped dry to prevent leakage into the surrounding environment and removed from site. Where a registered disposal facility is not available close to the Project Area, the Contractor shall provide a method statement with regards to waste management. 			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Low negative	
Duration	Short term	Impact will last between 1 and 5 years	Brief	Impact will not last longer than 1 year
Extent	Very limited	Limited to the site and its immediate surroundings	Very limited	Limited to the site and its immediate surroundings
Intensity	Low	Natural and/or social functions and/or processes are somewhat altered	Very low	Natural and/or social functions and/or processes are slightly altered
Probability	Likely	The impact may occur	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
Reversibility	High	The affected environmental will be able to recover from the impact	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Negligible - negative		Negligible - negative	
Comment on significance	Construction activities are likely to generate significant quantities of solid waste that could pollute the buffer zone and natural areas.			
Cumulative impacts	The impact would result in insignificant cumulative effects.			

Project Phase	Construction			
Impact	Construction Vehicles			
Description of impact	Pollution caused by the operation of vehicles and heavy machinery.			
Mitigable	High	Mitigation exists and will considerably reduce significance of impacts		
Potential mitigation	<ul style="list-style-type: none"> 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. 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	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 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	Construction			
Impact	Erosion Management			
Description of impact	Potential erosion during clearance of the site and increased stormwater runoff			
Mitigable	High	Mitigation exists and will considerably reduce the significance of impacts		
Potential mitigation	<ul style="list-style-type: none"> Ensure that construction activities do not cause any preferential flow paths and concentrated surface runoff during rainfall events. Clearly demarcate the construction area and ensure that heavy machinery does not compact soil or disturb vegetation outside of these demarcated areas. 			

	<ul style="list-style-type: none"> Reduce transport of sediment through use of structures such as silt fences and biodegradable coir logs placed along a contour below the development footprint. Ensure that vegetation clearing is conducted in parallel with the construction progress to minimise erosion and runoff. Revegetate exposed areas once construction has been completed. Ensure that stormwater and runoff generated by hardened surfaces is discharged in retention areas (i.e. swales or retention ponds), to avoid concentrated runoff and associated erosion. 			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Low Negative	
Duration	Short term	Impact will last between 1 and 5 years	Brief	Impact will not last longer than 1 year
Extent	Limited	Limited to the site and its immediate surroundings	Very limited	Limited to specific isolated parts of the site
Intensity	Low	Natural and/or social functions and/or processes are somewhat altered	Very low	Natural and/ or social functions and/ or processes are slightly altered
Probability	Almost certain	It is most likely that the impact will occur	Likely	The impact may occur
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Minor - negative		Negligible - negative	
Comment on significance	Steep slopes on the property will be vulnerable to erosion during clearance of the site and the construction phase. It is therefore important that appropriate erosion control measures are implemented.			
Cumulative impacts	Without mitigation this impact could result in potential erosion on site caused by stormwater.			

Project Phase	Construction	
Impact	Disturbance / removal of topsoil	
Description of impact	Disturbance of topsoil, potential soil erosion and the loss of topsoil	
Mitigable	High	Mitigation exists and will considerably reduce the significance of impacts
Potential mitigation	<ul style="list-style-type: none"> 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. 	

	<ul style="list-style-type: none"> 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		With mitigation	
Nature	Negative		Low Negative	
Duration	Short term	Impact will last between 1 and 5 years	Brief	Impact will not last longer than 1 year
Extent	Limited	Limited to the site and its immediate surroundings	Very limited	Limited to specific isolated parts of the site
Intensity	Low	Natural and/or social functions and/or processes are somewhat altered	Very low	Natural and/ or social functions and/ or processes are slightly altered
Probability	Almost certain	It is most likely that the impact will occur	Likely	The impact may occur
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Negligible - negative		Minor - negative	
Comment on significance	Clearing areas of the site in preparation for construction will expose bare soil which may lead to the potential loss of topsoil through runoff and incorrect storage. This is not envisaged to be a significant impact with mitigation measures in place. Topsoil can be reused on site for rehabilitation purposes.			
Cumulative impacts	Without mitigation this impact could result in potential erosion on the site caused by stormwater flow.			

Project Phase	Construction			
Impact	Noise 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	<ul style="list-style-type: none"> 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	Without mitigation		With mitigation	
Nature	Negative		Negative	
Duration	Brief	Impact will not last longer than 1 year	Brief	Impact will not last longer than 1 year
Extent	Limited	Limited to the site and its immediate surroundings	Limited	Limited to the site and its immediate surroundings
Intensity	Very low	Natural and/ or social functions and/ or processes are slightly altered	Negligible	Natural and/ or social functions and/ or processes are negligibly altered

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

Project Phase	Construction			
Impact	Visual impact			
Description of impact	Visual & aesthetic consequences of the proposed project			
Mitigable	Medium	Mitigation exists and will notably reduce significance of impacts		
Potential mitigation	<ul style="list-style-type: none"> The necessary measures be implemented during the construction phase to protect the natural vegetation, to control the noise, dust and visual intrusion. The potential visual impacts and proposed mitigation thereof must be undertaken by a professionally registered landscape architect that must be part of the design team (including engineers and architects). The brief of the landscape architect (LA) must include: <ul style="list-style-type: none"> The LA must consult with both engineers and architects to ensure that sensitive earthwork and building design development occurs, which will allow for reducing the construction and operation phase visual impacts. The LA must work with the project surveyor, arborist and planners in establishing which trees are to remain on site for visual screening and taking this information into the design development of the civil and building works. The LA must prepare a landscape plan, design development thereof and monitoring implementation and thereafter maintenance. The plan must include the tree survey and what trees are, what indigenous vegetation is, to be retained, what is to be removed, the planting of indigenous trees, new trees and shrub planting along roadways and in open spaces in the built areas and a guideline document for private gardens within the development. 			
Assessment	Without 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	Certain / Definite	There are sound scientific reasons to expect that the impact will definitely 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 environment will be able to recover from the impact
Resource irreplaceability	Not relevant		Not relevant	
Significance	Minor - negative		Negligible - negative	
Comment on significance	The proposal is sensitive towards the character of the area and attempts to create a unique sense of place that will blend in and compliment the ambience of the surrounding area.			
Cumulative impacts	No cumulative impacts exist.			

Project Phase	Construction			
Impact	Employment			
Description of impact	Empowerment of the local community members living in the area relating to temporary employment opportunities			
Mitigable	Medium	Mitigation only exists to ensure that the positive impact is followed through.		
Potential mitigation	<ul style="list-style-type: none"> Use existing social structures and communication channels to ensure social representation. Use local labour and source local materials as far as possible. 			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Positive	
Duration	Short term	Impact will last between 1 and 5 years	Short term	Impact will last between 1 and 5 years
Extent	Local	Extending across the site and to nearby settlements	Local	Extending across the site and to nearby settlements
Intensity	Low	Natural and/ or social functions and/ or processes are somewhat altered	Low	Natural and/ or social functions and/ or processes are somewhat altered
Probability	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere	Almost certain / Highly probable	It is most likely that the impact will occur
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	Not relevant		Not relevant	
Resource irreplaceability	Not relevant		Not relevant	
Significance	Negligible - negative		Negligible - positive	
Comment on significance	Due to the proposed development being on a small-scale, there is a low difference in impacts between without mitigation and with mitigation. However, as the impact would be positive for the local community to be employed during construction, mitigation is recommended to ensure this occurs.			
Cumulative impacts	Minor upliftment for the local community.			

Impacts foreseen during the Operational Phase for Alternative 2:

Project Phase	Operation			
Impact	Visual / Sense of place			
Description of impact	Visual impacts of structures / aesthetic consequences due to incorrect or excessive lighting, especially outdoor lighting			
Mitigable	Medium	Mitigation exists and will notably reduce significance of impacts		
Potential mitigation	<ul style="list-style-type: none"> • 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 the Landscape Plan. • Outside lighting should be designed and limited to minimise impacts on fauna. All outside lighting should be directed away from any sensitive areas. Fluorescent and mercury vapor lighting should be avoided, and sodium vapor (green/red) lights should be used wherever possible 			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative Low	
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Medium Term	Impact will last between 5 and 15 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	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	Medium	The affected environment will only recover from the impact with significant intervention	High	The affected environment will be able to recover from the impact
Resource irreplaceability	Not relevant		Not relevant	
Significance	Minor - negative		Negligible - negative	
Comment on significance	Lighting, specifically outdoor lighting is not only aesthetic, but it provides a level of security to property owners. Therefore, outdoor lighting is essential, but should be implemented in a way which does not cause negative impacts to neighbours.			
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	
Impact	Stormwater Management	
Description of impact	Accelerated erosion / pollution into sub-surface water.	
Mitigable	High	Mitigation exists and will considerably reduce the significance of impacts

Potential mitigation	<ul style="list-style-type: none"> • A sustainable stormwater design must be implemented to prevent excessive run-off that will lead to erosion of the surrounding landscape. • Stormwater generated on site should be managed according to Sustainable Drainage System (SuDS) principles. This requires that as much stormwater as possible should be attenuated within the development footprint. The following measures, <i>inter alia</i>, should be considered: <ul style="list-style-type: none"> ○ Rainwater harvesting tanks must be installed; ○ Use of swales and detention ponds to attenuate stormwater runoff, encourage infiltration and reduce the speed, energy and volumes at which stormwater is discharged from the site; ○ Use of permeable paving to encourage infiltration into the soil; and ○ Use of retention ponds and artificial wetlands to capture stormwater runoff and prevent its discharge from the 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	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 environment will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Negligible - negative		Minor - negative	
Comment on significance	A key impact related to residential developments is the generation of large volumes of stormwater associated with an increased area of impermeable surfaces (i.e. roads, roofs and other infrastructure). Stormwater is typically conveyed into watercourses, where high volumes (and associated high energy) cause degradation of watercourses, mainly due to the erosion of the bed and banks. In this respect given the steep slopes within the property, even though the drainage line is located outside of the development footprint, it is potentially vulnerable to stormwater impacts.			
Cumulative impacts	Without mitigation this impact could result in potential erosion on the site caused by stormwater flow.			

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

Potential mitigation	<ul style="list-style-type: none"> 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. An Alien Control Plan should be implemented to systematically remove and control alien plant species. Follow-up operations must be done. Minimise disturbance to the natural vegetation using low impact manual labour techniques. Reduce fire hazard on site. 			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Positive	
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Brief	Impact will not last longer than 1 year
Extent	Limited	Limited to the site and its immediate surroundings	Limited	Limited to the site and its immediate surroundings
Intensity	Medium	Natural and/or social functions and/or processes are notably altered	Medium	Natural and/or social functions and/or processes are notably altered
Probability	Certain / Definite	There are sound scientific reasons to expect that the impact will definitely occur	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	Low	The affected environment will not be able to recover from the impact - permanently modified	Medium	The affected environment will only recover from the impact with significant intervention
Resource irreplaceability	Not relevant		Not relevant	
Significance	Moderate - negative		Moderate - positive	
Comment on significance	An approved AIP Control Plan is in place, and much of the property has already been legally eradicated of AIP. The control of AIP on the property has a positive impact on biodiversity.			
Cumulative impacts	Without mitigation this impact could result in the spread of alien invasive plants and the loss of indigenous vegetation.			

Project Phase	Operation			
Impact	Landscaping			
Description of impact	Habitat loss for terrestrial wildlife, fragmentation of ecological corridor			
Mitigable	Low	Mitigation will slightly reduce the significance of impacts		
Potential mitigation	<ul style="list-style-type: none"> The Landscape Plan must be implemented and adhered to. 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. All landscaping must comprise of flora species indigenous to the region. The sole use of exotics and the planting of NEMBA listed Alien Invasive Plants is prohibited. 			
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.			