

APPENDIX F: IMPACT STATEMENT

The assessment of impacts will largely be based on the Department of Environmental Affairs and Tourism's (1998) Guideline Document: Environmental Impact Assessment Regulations. The assessment will consider impacts arising from the proposed decommissioning activities of the project both before and after the implementation of appropriate mitigation measures.

The impacts will be assessed according to the criteria outlined in this section. Each issue is ranked according to extent, duration, magnitude (intensity) and probability. From these criteria, a significance rating is obtained, the method and formula is described below. Where possible, mitigation recommendations have been made and are presented in tabular form.

The criteria given in the tables below will be used to conduct the evaluation. The nature of each impact was to be assessed and described in relation to the extent, duration, intensity, significance and probability of occurrence attached to it.

Table 1: Methodology Used in determining the significance of potential environmental impacts

Status of Impact

The impacts are assessed as either having a:
negative effect (i.e. at a 'cost' to the environment),
positive effect (i.e. a 'benefit' to the environment), or
Neutral effect on the environment.

Extent of the Impact

- (1) Site (site only),
- (2) Local (site boundary and immediate surrounds),
- (3) Regional (within the City of Johannesburg),
- (4) National, or
- (5) International.

Duration of the Impact

- The length that the impact will last for is described as either:
- (1) immediate (<1 year)
 - (2) short term (1-5 years),
 - (3) medium term (5-15 years),
 - (4) long term (ceases after the operational life span of the project),
 - (5) Permanent.

Magnitude of the Impact

- The intensity or severity of the impacts is indicated as either:
- (0) none,
 - (2) Minor,
 - (4) Low,
 - (6) Moderate (environmental functions altered but continue),
 - (8) High (environmental functions temporarily cease), or
 - (10) Very high / Unsure (environmental functions permanently cease).

Probability of Occurrence

- The likelihood of the impact actually occurring is indicated as either:
- (0) None (the impact will not occur),
 - (1) improbable (probability very low due to design or experience)

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- (2) low probability (unlikely to occur),
- (3) medium probability (distinct probability that the impact will occur),
- (4) high probability (most likely to occur), or
- (5) Definite.

Significance of the Impact

Based on the information contained in the points above, the potential impacts are assigned a significance rating (**S**). This rating is formulated by adding the sum of the numbers assigned to extent (**E**), duration (**D**) and magnitude (**M**) and multiplying this sum by the probability (**P**) of the impact.

$$S=(E+D+M)P$$

The significance ratings are given below

- (<30) low (i.e. where this impact would not have a direct influence on the decision to develop in the area),
- (30-60) medium (i.e. where the impact could influence the decision to develop in the area unless it is effectively mitigated),
- (>60) high (i.e. where the impact must have an influence on the decision process to develop in the area).

The impacts of the proposed project are assessed and rated as follows:

IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

Impacts Resulting from the Planning and Design Phase

Direct Impacts:

Employment Creation

Issue	Corrective measures	Impact rating criteria					Significance
		Status	Extent	Duration	Magnitude	Probability	
Employment Creation	No	Positive	3	2	8	4	52 Medium
	Yes	N/A	N/A	N/A	N./A	N/A	
Corrective Actions	<ul style="list-style-type: none">This is a positive impact and no mitigation is required.						

Socio-cultural

- The proposed project may create positive impact on the residents who are for the project. The public can look for investment opportunities during this phase of the project.

Issue	Corrective measures	Impact rating criteria					Significance
		Status	Extent	Duration	Magnitude	Probability	
Investment opportunities	No	Positive	3	2	8	4	52 Medium
	Yes	N/A	N/A	N/A	N./A	N/A	

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Corrective Actions

- This is a positive impact and no mitigation is required.

Similarly, the proposed project may create conflict within communities adjacent to the proposed site if they do not understand the impacts the proposed project may create

Issue	Corrective measures	Impact rating criteria					Significance
		Status	Extent	Duration	Magnitude	Probability	
People may be against the proposed project	No	Negative	2	2	8	4	48 Medium
	Yes	Positive	2	2	8	3	36 Medium
Corrective Actions	A public participation process must be undertaken to deal with the concerns and queries of the interested and affected parties. This will in turn clear any misunderstanding at ease conflict.						

Indirect Impacts:

None Identified.

Cumulative Impacts:

No cumulative impacts were identified.

Alternative 1

Impacts Resulting from the Construction Phase							
<p>Direct Impacts:</p> <p>Soils and water pollution</p> <ul style="list-style-type: none"> The construction phase might result in increased infiltration of contaminants into the ground. Soil compaction due to movement of vehicles and machinery. The clearing of the site will result in exposed soil surfaces which may be prone to erosion, creation of dust and sedimentation of streams. Spillages of oil, lubricants and fuel from construction vehicles, plant and machinery has the potential to contaminate the soil and groundwater. Flora in these areas where contamination occurs will die. Cement mixing and the storage of fuel can lead to contamination of the soil and water resources. Storm water run-off has the potential to erode the topsoil and result in sedimentation on streams if not controlled. 							
Issue	Corrective measures	Impact rating criteria					Significance
		Status	Extent	Duration	Magnitude	Probability	
Soils and erosion	No	Negative	2	2	8	4	48 Medium
	Yes	Negative	1	2	6	3	27 Low

Corrective Actions	<p>Refer to the EMP for the detailed mitigation requirements.</p> <ul style="list-style-type: none"> Waste bins (with secure lids) for hazardous waste and general waste must be provided at the site camp. Vehicles and machinery must be in good working order and must be regularly inspected for any leaks. If a vehicle or machinery is leaking pollutants it must be removed from site and taken to an appropriate location for repairs. Repairs to vehicles/ machinery should not take place in outside of the designated areas allocated for such activities, except in emergencies. Drip trays must be utilized for vehicle/ machinery maintenance on site, where there is a risk of fuel/ oil/ lubricant spillage. Drip trays must be placed under generators (if used on site) water pumps and any other machinery on site that utilizes fuel/ lubricant. A spill kit to neutralize/treat spills of fuel/ oil/ lubricants must be available on site. Soil contaminated by spilled oil/ fuel/ lubricant must be excavated and disposed of in the hazardous waste bin. Refueling of vehicles/ machinery should not take place outside of the designated areas unless strictly necessary. Where refuelling must occur, drip trays should be utilized. Vehicles and machinery must be kept in the site camp when not in use. Chemical toilets should be kept at the site camp. Toilets must be regularly serviced and emptied and the waste disposed of at a licensed waste water treatment site. Cement batching (if required) must take place on an impermeable surface sufficiently large to catch all cement slurry/ run-off. Cement waste must be disposed of in the appropriate waste bin. No release of any substance i.e. cement, oil, that could be toxic. Place the construction camp or any depot for any substance which causes or is likely to cause pollution outside of sensitive areas including the steep slopes. Spillages of fuels, oils and other potentially harmful chemicals must be cleaned up immediately and contaminants properly drained and disposed of using correct solid / hazardous waste facilities (not to be disposed of within the natural environment). Any contaminated soil must be removed and the affected area rehabilitated immediately. Domestic waste must be removed through the services of a waste contractor and a municipal waste site must be used for disposal.
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Destruction of flora & fauna

- Construction activities will disturb the fauna that might be present on the site. Disruption of the breeding patterns of birds and animals.
- Potential loss of indigenous flora and habitat due to land/vegetation clearance.
- Risk to animals falling into the open trenches during construction.
- The clearing of vegetation will result in the loss of habitat, habitat fragmentation and possibly a loss of species on the site.
- The noises and vibrations resulting from machinery could impact on faunal species outside the site.
- Pollution resulting from the construction site such as litter, solid waste, sewerage and spills of oil, lubricants and fuel

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could reduce the quality of the habitats in the surrounding area and directly impact on the health and welfare of the fauna and flora surrounding the site.

- Due to the disturbance of the site alien plants will be able to establish and could become a problem by infesting neighbouring land.
- Injury or even loss of fauna in the area through poaching and hunting.
- Increase in vermin populations.

Issue	Corrective measures	Impact rating criteria					Significance
		Status	Extent	Duration	Magnitude	Probability	
Safety and Security	No	Negative	2	2	6	4	40 = Medium
	Yes	Negative	1	2	4	3	21 = Low
Corrective Actions	<ul style="list-style-type: none"> • Vegetation clearance will be limited to the development plan. • Care must be taken that unnecessary clearance of vegetation does not take place. Where possible, natural vegetation must be retained or pruned. • An invasive species control programme must be implemented to monitor and prevent the large scale establishment of exotic species. • No hunting, harming or capturing of any of the animals on the site must be allowed. This must be enforced during construction as well as the operational phase. • Speed limit will be enforced on the construction vehicles and these vehicles will only make use of designated roads. • No littering by construction workers is permitted. Any litter will be collected and removed off-site to a registered waste site. • Cleared indigenous vegetation can be stockpiled for possible reuse in later rehabilitation or landscaping. • Stockpiles of vegetation are only to be located in areas approved by the ECO, and may not exceed 2m in height. Methods of stacking must take cognisance of the possible creation of a fire hazard. • Care must be taken to avoid the introduction of alien plant species to the site and surrounding areas. • Alien vegetation re-growth must be controlled throughout the entire site during the construction period. • Construction time must be kept to a minimum followed by speedy rehabilitation to restore habitat and biodiversity integrity where required. • No uncontrolled collection of firewood may be allowed on the property and surroundings. • No open fires are allowed outside designated cooking areas. • no smoking is to be allowed in the vicinity of fuel dispensing areas (smoking is only to be allowed in designated "safe" areas); • Adequate fire fighting equipment must be available onsite at all times and at least one person present on the site must be trained in the use thereof. • The cleared vegetation should not be burned, but taken to the nearest available municipal disposal site or made available for use in a controlled manner. • No poison should be used to control any animals without the input of an ecologist/zoologist. • The removal and clearing of vegetation will not be allowed until an approval is obtained from the ECO. • The ECO should monitor for the presence of Red List and protected species during all 						

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vegetation clearing operations. Should such species be identified, clearing should cease until the correct permit has been obtained for their relocation or removal. Relocation may only be undertaken by suitably qualified individuals and under consultation with the correct authority.

Traffic Impact

- Increased traffic congestion is expected to occur in the area due to an increase in construction vehicle and truck traffic for the duration of the construction phase while materials are being transported to the site.

The construction phase may result in increased pressure on the condition of the road.

Issue	Corrective measures	Impact rating criteria					Significance
		Status	Extent	Duration	Magnitude	Probability	
Employment Creation	No	Negative	3	2	8	4	52 Medium
	Yes	Negative	2	2	4	3	24 Low
Corrective Actions	<ul style="list-style-type: none"> Proper traffic calming/ speed control should be implemented in attempt to manage the influx of vehicles and prevent accidents from occurring. The hiring of flagman in conjunction with designated travelling routes would assist in directing vehicular traffic in a suitable manner. Regular maintenance of the access road should be implemented to ensure road stays in good condition. The delivery of construction material and equipment should be limited to hours outside peak traffic times (including weekends) prevailing on the surrounding roads. Access roads must be clearly marked. Delivery vehicles must comply with all traffic laws and bylaws. 						

Air Pollution

Construction activities such as vegetation clearing, site preparation, earthworks, blasting and uncovered topsoil stockpiles may lead to increased dust and smoke emissions.

Issue	Corrective measures	Impact rating criteria					Significance
		Status	Extent	Duration	Magnitude	Probability	
Employment Creation	No	Negative	2	2	6	4	40 Medium
	Yes	Negative	1	2	4	3	21 Low
Corrective Actions	<ul style="list-style-type: none"> Speed limits of 30km/h must be enforced in all areas, including public roads and private property to limit the levels of dust pollution. Dust must be suppressed on access roads and construction sites by the regular application of water or a biodegradable soil stabilisation agent. Water used for this purpose must be used in quantities that will not result in the generation of excessive run off. All vehicles transporting sand need to have tarpaulins covering their loads which will assist in any windblown sand occurring off the trucks. All construction activities should be restricted to normal construction working hours. All vehicles exhausts systems should be in working order to limit air pollution. 						

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Noise Pollution

There will be an increase in noise during the construction phase due to working of machinery, equipment and vehicles as well as hammering.

Issue	Corrective measures	Impact rating criteria					Significance
		Status	Extent	Duration	Magnitude	Probability	
Employment Creation	No	Negative	2	2	6	4	52 Medium
	Yes	Negative	2	2	4	3	24 Low
Corrective Actions	<ul style="list-style-type: none"> The project team must endeavour to keep noise generating activities associated with construction to a minimum and within working hours. No unnecessary disturbances should be allowed to emanate from the construction site. Due to the location of the proposed development site to residents, noise levels must be kept to a minimum at all times. If excessive noise is expected, nearby residents must be informed in advance of when the high noise levels will occur and for how long they will occur. It may be required to fit silencers on machinery if noise levels at the boundary are excessively high. All employees must be given the necessary ear protection gear. Any complaints pertaining to noise must be recorded and reported to the ECO and addressed accordingly. 						

Safety and security

Construction site can be a dangerous place and thus could result in harm to people and property. Possibility of an increase in crime in the area due to more people living and working in the area.

Issue	Corrective measures	Impact rating criteria					Significance
		Status	Extent	Duration	Magnitude	Probability	
Employment Creation	No	Negative	2	2	8	4	48 Medium
	Yes	Negative	2	2	4	3	24 Low
Corrective Actions	<ul style="list-style-type: none"> The provisions of the OHS Act should be implemented at all times. Security must be appointed during the construction phase of the development to help prevent crime/theft from the proposed construction site and surrounding properties. Signs should be erected on all entrance gates indicating that no temporary jobs are available, thereby limiting opportunistic labourers and crime. All structures that are vulnerable to high winds must be secured (including scaffolds and toilets). All manhole openings are to be covered and clearly demarcated with danger tape. The contractor is to ensure traffic safety at all times, and shall implement road safety precautions for this purpose when works are undertaken on or near public roads. Necessary personal protective equipment (PPE) and safety gear appropriate to the task being undertaken is to be provided to all site personnel (e.g. Hard hats, safety boots, masks etc.). 						

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- All vehicles and equipment used on site must be operated by appropriately trained and / or licensed
- An environmental awareness training programme for all staff members shall be put in place by the contractor. Before commencing with any work, all staff members shall be appropriately briefed about the EMPr and relevant occupational health and safety issues.
- All construction workers shall be issued with ID badges and clearly identifiable uniforms.
- Emergency procedures must be produced and communicated to all the employees on site. This will ensure that accidents are responded to appropriately and the impacts thereof are minimized.
- Adequate emergency facilities must be provided for the treatment of any emergency on the site.
- Emergency contact numbers are to be displayed conspicuously at prominent locations around the construction site and the construction crew camps at all times.
- The contractor must have a basic spill control kit available at the construction site and offices.

Visual Impact

Littering and illegal dumping on the site may result in an alteration of the visual character of the site.

The development will result in the removal of vegetation; the erection of construction camps; construction of buildings as well as the presence of construction vehicles etc. which may all be visually intrusive. Lights from the contractor's camp and the construction site may be visually intrusive.

Issue	Corrective measures	Impact rating criteria					Significance
		Status	Extent	Duration	Magnitude	Probability	
Employment Creation	No	Positive	2	2	8	5	60 Medium
	Yes	N/A	2	2	6	3	30 Medium
Corrective Actions		<ul style="list-style-type: none"> • Demarcate sensitive areas and no-go areas with danger tape to prevent disturbance during construction. • Plan construction times in such a manner to have the least impact on surrounding properties. • Keep disturbed areas to a minimum. • No clearing of land to take place outside the demarcated footprints. • Minimise waste generation on the construction site and recycle waste where possible. • Reduce and control dust through the use of approved dust suspension techniques as and when required. • Rehabilitate all disturbed areas in accordance with the Method Statement. • Maintain access roads to prevent scouring and erosion, especially after rains. • Storage facilities and other temporary structures on site must be located such that they have as little visual impact on local residents as possible. • Soil excavated (if any) must not be stockpiled above 2m. • All temporary structures erected on site for the purposes of the project's construction phase will be removed from site upon completion of the project. • Lighting will be sufficient to ensure security but will not constitute 'light pollution' 					

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to the surrounding areas.

- The site must be clean and tidy at all times.

Agricultural Potential

Loss of agricultural land within the site was assessed with regards to loss of arable land as well as loss of grazing land both within the site and within adjacent agricultural properties. Due to the low agricultural potential of the site with regards to arable land (as a result of the strongly structured and impeding clay layer) the loss of arable land is predicted to be of a low significance.

Issue	Corrective measures	Impact rating criteria					Significance
		Status	Extent	Duration	Magnitude	Probability	
Loss of arable land	No	Negative	2	2	4	3	24 Low
	Yes	Negative	1	2	4	2	14 Low
Corrective Actions	<ul style="list-style-type: none"> • The development must be contained within the site, either by a wall or fence structure so that no access to adjacent properties can take place. • Dust monitoring during construction must form part of the EMPr as dust will reduce the quality of grazing grasses on adjacent properties. • Management of waste so that it does not impact adjacent properties must take place as per the EMPr particularly during the operational phase. • Spillages of fuels, oils and other potentially harmful chemicals must be cleaned up immediately and contaminants properly drained and disposed of using correct solid/hazardous waste facilities (not to be disposed of within the natural environment). • Any contaminated soil must be removed and the affected area rehabilitated immediately. • The implementation of an alien invasive control plan must form part of the construction and operational EMPr for the development. 						

Heritage

There is a potential impact on the noted informal graveyard that was found on site. Different types of grave dressing where found, these being stones, bricks, granite and some form of cement. The area where these graves are located is disturbed by the movement of cattle. Nevertheless, all these graves have no inscription on them. According to legislature, unknown graves are handled similarly to those older than 60 years. The noted structures are viewed to have a medium significance on a regional level. In terms of Section 7 of the National Heritage Resource Act, all these structures are evaluated to have Grade III significance. Mitigation measures for this impact have been proposed by the archaeological specialist and are listed below.

Issue	Corrective measures	Impact rating criteria					Significance
		Status	Extent	Duration	Magnitude	Probability	
Employment Creation	No	Negative	2	5	10	5	85 High
	Yes	Negative	1	5	8	4	56 Medium
Corrective Actions	<ul style="list-style-type: none"> • Firstly and mostly preferred is to fence the graves and compile a management plan to ensure their continuous conservation. This should be completed by a heritage specialist, and is done when graves are not in direct jeopardy by the proposed 						

development.

- The second and last option is Phase-2 mitigation (relocation of graves). This procedure entails social consultation and application of permits for those older than 60 years and unknown graves, while those less than 60 years of age, authorisation should be requested with respective departments. Further to this recommendation, the developer should ensure that the descendant of the graves are sought, and notified about this proposed development which might have an impact (directly or indirectly) on their graves.
- No stone robbing or removal of any material is allowed. Any disturbance or alteration on this graveyard would be illegal and punishable by law. Furthermore, the developer should maintain a reasonable buffer zone around the identified graveyards (approximately 25 metres).
- No dumping of construction material is allowed within this buffer zone and no alteration or damage on this site (buffer) may occur.
- If the developer aims to demolish some of the features of the noted buildings or structures, it is strictly recommended that a second phase heritage impact assessment is conducted by a heritage specialist. This should be done before the commencement of the proposed development, and it will entail proper documentation of these structures, as well as application for the permit to demolish (or renovate) with the FSPHRA as stipulated by the legislature.
- Alternatively, these structures can be integrated into the proposed development, in such instances, the developer will have to plan around these structures and include them in the layout plan. The current occupants of these houses are of important in the planning of the project. Conversely, the views of the occupants of these houses are crucial in planning for the potential resettlement plan.
- Should any archaeological material be unearthed accidentally during the course of construction, SAHRA should be alerted immediately and construction activities be stopped within a radius of at least 10m of such indicator. The area should then be demarcated by a danger tape. Accordingly, a professional archaeologist or SAHRA officer should be contacted immediately. In the meantime, it is the responsibility of the Environmental officer and the contractor to protect the site from publicity (i.e., media) until a mutual agreement is reached.
- It is mandatory to report any incident of human remains encountered to the South African Police Services, SAHRA staff member and professional archaeologist. Any measure to cover up the suspected archaeological material or to collect any resources is illegal and punishable by law.

Socio-economic impact

- The construction phase of this development is expected to generate a number of temporary jobs mostly to previously disadvantaged individuals.
- During operational phase, permanent jobs will be created to maintain and manage the property. Most of these jobs will be directed to the locals and previously disadvantaged individuals.

Issue	Corrective measures	Impact rating criteria					Significance
		Status	Extent	Duration	Magnitude	Probability	
Employment	No	Positive	3	2	8	4	52 Medium

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Creation	Yes	N/A	N/A	N/A	N/A	N/A	
Corrective Actions	<ul style="list-style-type: none"> This is a positive impact and no mitigation required, however preference should be given to historically disadvantaged individuals from the local, surrounding community, when appointing employees for construction work. Employment of local labour will be a positive impact of the project and must be encouraged. During the construction phase, jobs must be created for unemployed local people and skills must be transferred to them. Where viable, the work must be executed in a labour intensive manner to create as many jobs as possible. It is the employer's responsibility to adhere to the municipality's guidelines, principles and policies regarding employment. 						

Indirect Impacts

Indirectly, jobs are also created in industries that provide goods, materials and services. The proposed development will lead to an increase in the level of local employment in the areas surrounding the development site. Both short-term and long-term employment will be created.

Issue	Corrective measures	Impact rating criteria					Significance
		Status	Extent	Duration	Magnitude	Probability	
Employment Creation	No	Positive	3	2	8	4	52 Medium
	Yes	N/A	N/A	N/A	N/A	N/A	
Corrective Actions	<ul style="list-style-type: none"> This is a positive impact and no mitigation is required. 						

Spread of alien vegetation

Due to the disturbance of the site alien plants will be able to establish and could become a problem by infesting neighbouring land.

Issue	Corrective measures	Impact rating criteria					Significance
		Status	Extent	Duration	Magnitude	Probability	
Employment Creation	No	Negative	2	2	6	5	50 Medium
	Yes	Negative	1	2	4	4	28 Low
Corrective Actions	<ul style="list-style-type: none"> Vegetation clearance will be limited to the development plan. Care must be taken that unnecessary clearance of vegetation does not take place. Where possible, natural vegetation must be retained or pruned. Establishment of extensive alien species will be monitored. Stockpiles of vegetation are only to be located in areas approved by the ECO, and may not exceed 2m in height. Methods of stacking must take cognisance of the possible creation of a fire hazard. Care must be taken to avoid the introduction of alien plant species to the site and surrounding areas. Alien vegetation re-growth must be controlled throughout the entire site during the 						

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- construction period.
- Construction time must be kept to a minimum followed by speedy rehabilitation to restore habitat and biodiversity integrity where required.
 - No uncontrolled collection of firewood may be allowed on the property and surroundings.
 - The cleared vegetation should not be burned, but taken to the nearest available municipal disposal site or made available for use in a controlled manner.
- The removal and clearing of vegetation will not be allowed until an approval is obtained from the ECO

Soil compaction and erosion

Potential compaction and erosion of exposed soil due to presence and movement of construction vehicles.

Issue	Corrective measures	Impact rating criteria					Significance
		Status	Extent	Duration	Magnitude	Probability	
Employment Creation	No	Negative	2	2	6	5	50 Medium
	Yes	Negative	1	2	4	3	21 Low
Corrective Actions	<ul style="list-style-type: none"> • All disturbed areas must be rehabilitated as soon as construction in an area is complete • An indigenous landscaping plan is recommended for garden areas within the development. • Construction should only be limited to the development footprint of the project. 						

Socio economic

- Indirectly, jobs will also be created in industries that provide goods, materials and services. For example, an additional amount of goods used in construction will be required from business and industries related to the construction sector.
- The proposed development will lead to an increase in the level of local employment in the areas surrounding the development site. Both short-term and long-term employment will be created.

Issue	Corrective measures	Impact rating criteria					Significance
		Status	Extent	Duration	Magnitude	Probability	
Employment Creation	No	Positive	3	2	8	4	52 Medium
	Yes	N/A	N/A	N/A	N/A	N/A	
Corrective Actions	<ul style="list-style-type: none"> • This is a positive impact and no mitigation required, however preference should be given to historically disadvantaged individuals from the local, surrounding community, when appointing employees for construction work. • Employment of local labour will be a positive impact of the project and must be encouraged. • During the construction phase, jobs must be created for unemployed local people and skills must be transferred to them. • It is the employer's responsibility to adhere to the municipality's guidelines, principles and policies regarding employment 						

Traffic

Construction vehicles will result in increased traffic on adjacent roads.

Issue	Corrective measures	Impact rating criteria					Significance
		Status	Extent	Duration	Magnitude	Probability	
Employment Creation	No	Negative	3	2	8	4	52 Medium
	Yes	Negative	2	2	4	3	24 Low
Corrective Actions	<ul style="list-style-type: none"> Proper traffic calming/ speed control should be implemented in attempt to manage the influx of vehicles and prevent accidents from occurring. The hiring of flagman in conjunction with designated travelling routes would assist in directing vehicular traffic in a suitable manner. Regular maintenance of the access road should be implemented to ensure road stays in good condition. The delivery of construction material and equipment should be limited to hours outside peak traffic times (including weekends) prevailing on the surrounding roads. Access roads must be clearly marked. Delivery vehicles must comply with all traffic laws and bylaws. 						

Safety and Security

Construction sites may attract unemployed people, so large numbers of people may gather on or around the site. These people must be kept off the site for safety reasons. Increase in crime might be possible during the construction phase should the developer not implement good management practices etc. Criminals may also utilise the opportunity to steal items from the site and surrounding properties.

Issue	Corrective measures	Impact rating criteria					Significance
		Status	Extent	Duration	Magnitude	Probability	
Employment Creation	No	Negative	2	2	8	4	48 Medium
	Yes	Negative	2	2	4	3	24 Low
Corrective Actions	<ul style="list-style-type: none"> Security must be appointed during the construction phase of the development to help prevent crime/theft from the proposed construction site and surrounding properties. Signs should be erected on all entrance gates indicating that no temporary jobs are available, thereby limiting opportunistic labourers and crime. The contractor is to ensure traffic safety at all times, and shall implement road safety precautions for this purpose when works are undertaken on or near public roads. Landowners must be kept informed with all related activities around their properties. Health and Safety standards and guidelines must be implemented. An environmental awareness training programme for all staff members shall be put in place by the contractor. Before commencing with any work, all staff members shall be appropriately briefed about the EMP and relevant occupational health and safety issues. All construction workers shall be issued with ID badges and clearly identifiable uniforms. 						

- Emergency procedures must be produced and communicated to all the employees on site. This will ensure that accidents are responded to appropriately and the impacts thereof are minimized.
- Emergency contact numbers are to be displayed conspicuously at prominent locations around the construction site and the construction crew camps at all times

Cumulative Impacts

Soil and Water Pollution

- Spillages of cement, oil, lubricants and fuel from construction vehicles, plant and machinery has the potential to contaminate soil and water resources. Flora and fauna in these areas where contamination occurs may be negatively affected.
- The construction phase might result in increased infiltration of contaminants into the groundwater and soil.
- The clearing of the site will result in exposed soil surfaces which may be prone to erosion and sedimentation of downstream water resources.

Issue	Corrective measures	Impact rating criteria					Significance
		Status	Extent	Duration	Magnitude	Probability	
Employment Creation	No	Negative	2	2	6	4	40 Medium
	Yes	Negative	1	2	4	3	21 Low
Corrective Actions	<ul style="list-style-type: none"> • Waste bins (with secure lids) for hazardous waste and general waste must be provided at the site camp. • Drip trays must be utilized for vehicle/ machinery maintenance on site, where there is a risk of fuel/ oil/ lubricant spillage. • Soil contaminated by spilled oil/ fuel/ lubricant must be excavated and disposed of in the hazardous waste bin. • Chemical toilets should be kept at the site camp. Toilets must be regularly serviced and emptied and the waste disposed of at a licensed waste water treatment site. • No release of any substance i.e. cement, oil, that could be toxic. • Spillages of fuels, oils and other potentially harmful chemicals must be cleaned up immediately and contaminants properly drained and disposed of using correct solid / hazardous waste facilities (not to be disposed of within the natural environment). 						

Destruction of flora & fauna

- Construction activities will disturb the fauna that might be present on the site. Disruption of the breeding patterns of birds and animals.
- The clearing of vegetation will result in the loss of habitat, habitat fragmentation and possibly a loss of species on the site.
- The noises and vibrations resulting from machinery could impact on faunal species outside the site.
- Due to the disturbance of the site alien plants will be able to establish and could become a problem by infesting neighbouring land.

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Issue	Corrective measures	Impact rating criteria					Significance
		Status	Extent	Duration	Magnitude	Probability	
Employment Creation	No	Positive	2	2	6	3	30 Medium
	Yes	N/A	1	2	4	2	14 Low
		<ul style="list-style-type: none"> Care must be taken that unnecessary clearance of vegetation does not take place. Where possible, natural vegetation must be retained or pruned. No hunting, harming or capturing of any of the animals on the site must be allowed. This must be enforced during construction as well as the operational phase. Care must be taken to avoid the introduction of alien plant species to the site and surrounding areas. An invasive species control programme must be implemented to monitor and prevent the large scale establishment of exotic species. Alien vegetation re-growth must be controlled throughout the entire site during the construction period. Construction time must be kept to a minimum followed by speedy rehabilitation to restore habitat and biodiversity integrity where required. No uncontrolled collection of firewood may be allowed on the property and surroundings. 					
Corrective Actions		The cleared vegetation should not be burned, but taken to the nearest available municipal disposal site or made available for use in a controlled manner					

Socio-economic

The construction phase of the proposed development will result in direct jobs being created for the construction of the proposed development. Indirectly, jobs are also created in industries that provide goods, materials and services. The proposed development will lead to an increase in the level of local employment in the areas surrounding the development site. Both short-term and long-term employment will be created.

Issue	Corrective measures	Impact rating criteria					Significance
		Status	Extent	Duration	Magnitude	Probability	
Employment Creation	No	Positive	3	2	8	5	65 High
	Yes	N/A	N/A	N/A	N/A	N/A	
Corrective Actions		<ul style="list-style-type: none"> This is a positive impact and no mitigation required, however preference should be given to historically disadvantaged individuals from the local, surrounding community, when appointing employees for construction work. Employment of local labour will be a positive impact of the project and must be encouraged. 					

Waste generation & disposal

Waste generation is expected during both the construction and operational phases. In addition to the already generated waste by other landowners, this will be of significance.

APPENDIX F: IMPACT STATEMENT

Issue	Corrective measures	Impact rating criteria					Significance
		Status	Extent	Duration	Magnitude	Probability	
Employment Creation	No	Negative	2	2	8	5	60 Medium
	Yes	Negative	2	2	6	4	40 Medium
Corrective Actions	<ul style="list-style-type: none"> It will be the responsibility of the contractor to manage the construction waste in accordance with the EMPr and this includes disposing of solid waste at a registered waste disposal site. Any solid waste produced on site will be collected in suitable containers and removed from site by the waste contractor. Solid waste to be produced during the operational phase will primarily be domestic waste which will be collected by the waste contractor and disposed of at the municipal landfill site 						

Alternative 2

Direct Impacts:

Indirect Impacts:

Cumulative Impacts:

Alternative 3

Direct Impacts:

Indirect Impacts:

Cumulative Impacts:

No go alternative

APPENDIX F: IMPACT STATEMENT

Direct Impacts:

Natural Environment

Should the site not be developed the following potential impacts associated with the construction phase of the proposed development will not occur. The impacts of the No-go alternative can be both positive and negative in this instance.

Positive impacts of the no-go alternative include are particularly related to the intact nature of the environment:

- No added possibility of soil and ground water pollution.
- No added increase in traffic volumes due to construction vehicles accessing the site.
- No added noise pollution that can be associated with construction related activities.

Issue	Corrective measures	Impact rating criteria					Significance
		Status	Extent	Duration	Magnitude	Probability	
Employment Creation	No	Neutral	2	2	8	5	60 Medium
	Yes	Neutral	N/A	N/A	N/A	N/A	
Corrective Actions	Mitigating impacts for this alternative would mean that the proposed development should go ahead. However, the proposed mitigation measures for environmental impacts should be implemented.						

Socio-economic

- No jobs will be created. Thus there will be a loss of income in the local economy.
- The proposed site will stay in its current state and will not contribute anything to the local economy as it is too small to use for profitable agricultural purposes. Arable land has low potential to yield reliable and viable crops.
- Additional residential and much needed institutional erven and units will not be provided.
- The industries that provide goods, materials and services will not benefit from the construction resulting in further loss of income in the local economy.

Issue	Corrective measures	Impact rating criteria					Significance
		Status	Extent	Duration	Magnitude	Probability	
Employment Creation	No	Neutral	3	2	8	5	65 High
	Yes	Neutral	N/A	N/A	N/A	N/A	
Corrective Actions	Mitigating impacts for this alternative would mean that the proposed development should go ahead. However, the proposed mitigation measures for socio-economic impacts should be implemented.						

Indirect Impacts: *The impacts will be similar as above.*

IMPACTS ASSOCIATED WITH THE OPERATIONAL PHASE

APPENDIX F: IMPACT STATEMENT

Alternative 1

Impacts Associated with the Operational Phase							
Direct Impacts:							
Soil and groundwater pollution							
<ul style="list-style-type: none">Possibility of contamination of the soil, surface and groundwater as a result of accidental spillages, petrochemical and sewerage leaks.Possible pollution of storm water and subsequent downstream water resources should the sewerage infrastructure (blocked pipes) not be maintained							
Issue	Corrective measures	Impact rating criteria					Significance
		Status	Extent	Duration	Magnitude	Probability	
Socio-economic	No	Negative	2	4	4	3	30 Medium
	Yes	Negative	1	4	2	2	14 Low
Corrective Actions	<ul style="list-style-type: none">Waste bins (with secure lids) for hazardous waste and general waste must be providedA spill kit to neutralize/treat spills of fuel/ oil/ lubricants must be available at all times.Soil contaminated by spilled oil/ fuel/ lubricant must be excavated and disposed of in the hazardous waste bin.Wastewater systems must be regularly inspected and maintained to prevent pollution and spillages						

Waste generation & disposal							
Possibility of litter spreading by wind to adjacent areas. Especially if household refuse bags are put out for delivery before the day scheduled for pickup. Stray dogs will most likely rip the bags leading to litter being blown into surrounding areas.							
Issue	Corrective measures	Impact rating criteria					Significance
Status	Extent	Duration	Magnitude	Probability			
Socio-economic	No	Negative	2	4	6	3	36 Medium
Yes	Negative	1	4	2	2	14 Low	
Corrective Actions	- Domestic waste must be removed regularly through the services of a waste contractor and a municipal waste site must be used for disposal.						
Soil erosion							
Potential erosion of exposed soil.							
Issue	Corrective measures	Impact rating criteria					Significance
Status	Extent	Duration	Magnitude	Probability			
Socio-economic	No	Negative	2	4	4	3	30 Medium
Yes	Negative	1	4	2	2	14 Low	
Corrective Actions	- Erosion control measures must be implemented in areas sensitive to erosion such as edges of slopes, exposed soil etc. These measures include but are not limited to - the use of sand						

APPENDIX F: IMPACT STATEMENT

	bags, hessian sheets, silt fences, retention or replacement of vegetation <ul style="list-style-type: none">Do not allow surface water or stormwater to be concentrated, or to flow down slopes without erosion protection measures being in place.All disturbed areas must be rehabilitated as soon as construction in an area is completeAn indigenous landscaping plan is recommended for garden areas within the development						
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Noise Pollution

Increased noise pollution due to presence of residents and increased traffic

Issue	Corrective measures	Impact rating criteria					Significance
		Status	Extent	Duration	Magnitude	Probability	
Socio-economic	No	Negative	2	4	4	3	30 Medium
	Yes	Negative	1	4	2	2	14 Low
Corrective Actions	<ul style="list-style-type: none">Speed limit signage must be place in the residence and must be adhered to.No hooting signage should be place in the residence and must be adhered to.Residents must be sensitized to noise pollution within the property.						

Traffic

Increased traffic on the roads

Issue	Corrective measures	Impact rating criteria					Significance
		Status	Extent	Duration	Magnitude	Probability	
Socio-economic	No	Negative	2	4	6	3	36 Medium
	Yes	Negative	2	4	6	2	24 Medium
Corrective Actions	<ul style="list-style-type: none">Speed limit signage must be place in the residence and must be adhered to.Proper traffic calming/ speed control should be implemented in attempt to manage the influx of vehicles and prevent accidents from occurring.“No hooting” signage should be place in the residence and must be adhered to.Regular maintenance of the access road should be implemented to ensure road stays in good condition						

Storm water

Increase storm water due to increased paved area. Storm water run-off has the potential to erode the topsoil and result in sedimentation of downstream water resources.

Issue	Corrective measures	Impact rating criteria					Significance
		Status	Extent	Duration	Magnitude	Probability	
Socio-economic	No	Negative	2	4	4	3	30 Medium
	Yes	Negative	1	4	2	2	14 Low
Corrective Actions	<ul style="list-style-type: none">Do not allow surface water or stormwater to be concentrated or to flow down slopes.The surface drainage system must be regularly inspected and damage reported and repaired, especially after heavy rains						

APPENDIX F: IMPACT STATEMENT

Indirect Impacts:

Waste generation & disposal

Generation of domestic waste

Issue	Corrective measures	Impact rating criteria					Significance
		Status	Extent	Duration	Magnitude	Probability	
Socio-economic	No	Negative	2	4	6	4	48 Medium
	Yes	Negative	1	4	4	2	18 Medium
Corrective Actions	<ul style="list-style-type: none"> Domestic waste must be removed through the services of a waste contractor and a municipal waste site must be used for disposal. 						

Noise Pollution

Noise pollution due to the presence of residents.

Issue	Corrective measures	Impact rating criteria					Significance
		Status	Extent	Duration	Magnitude	Probability	
Socio-economic	No	Negative	2	4	4	3	30 Medium
	Yes	Negative	1	4	2	2	14 Low
Corrective Actions	<ul style="list-style-type: none"> Residents must be sensitized to noise pollution within the property. Signage such as “no hooting” should be placed and adhered to at all times. 						

Traffic

Increased traffic on the roads

Issue	Corrective measures	Impact rating criteria					Significance
		Status	Extent	Duration	Magnitude	Probability	
Socio-economic	No	Negative	2	4	6	3	36 Medium
	Yes	Negative	2	4	4	2	20 Medium
Corrective Actions	<ul style="list-style-type: none"> Speed limit signage must be place in the residence and must be adhered to. Proper traffic calming/ speed control should be implemented in attempt to manage the influx of vehicles and prevent accidents from occurring. “No hooting” signage should be place in the residence and must be adhered to. Regular maintenance of the access road should be implemented to ensure road stays in good condition 						

Visual

Visual intrusion to the landscape due to the presence of the proposed development

Issue	Corrective	Impact rating criteria	Significance
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APPENDIX F: IMPACT STATEMENT

	measures	Status	Extent	Duration	Magnitude	Probability	
Socio-economic	No	Neutral	2	4	6	3	36 Medium
	Yes	Neutral	2	4	4	2	20 Low
Corrective Actions	<ul style="list-style-type: none"> Maintain access roads to prevent scouring and erosion, especially after rains. Lighting will be sufficient to ensure security but will not constitute 'light pollution' to the surrounding areas. The site must be clean and tidy at all times. A waste contractor must be employed to collect and dispose of waste at a registered or municipal landfill. Institute a proper landscape management plan (which includes tree planting) to ensure that built up structures may blend with the natural environment. 						

Storm water

Increased stormwater due to paved surface

Issue	Corrective measures	Impact rating criteria					Significance
		Status	Extent	Duration	Magnitude	Probability	
Socio-economic	No	Negative	2	4	4	3	30 Medium
	Yes	Negative	1	4	2	2	14 Low
Corrective Actions	<ul style="list-style-type: none"> Do not allow surface water or stormwater to be concentrated or to flow down slopes. The surface drainage system must be regularly inspected and damage reported and repaired, especially after heavy rains 						

Cumulative Impacts: cumulative impacts for this phase are similar to that of operational phase.

Alternative 2:

Impacts Associated with the Operational Phase

Alternative 3

Impacts Associated with the Operational Phase

No-go alternative

APPENDIX F: IMPACT STATEMENT

The No-go alternative impacts of the operational phase will be similar to the construction phase.

Direct Impacts:

Indirect Impacts:

Cumulative Impacts:

IMPACTS ASSOCIATED WITH THE DECOMMISSIONING PHASE

It is not anticipated that the proposed project will cease in the near future. However, if full decommissioning is decided upon, a rehabilitation plan will be developed and submitted for approval. The end-use of the area will be kept in mind during the compilation of the rehabilitation plan. The potential impacts identified below should be anticipated.

Impacts Associated with the Decommissioning Phase

Direct Impacts

Waste

The decommissioning of the proposed project will contribute to large amounts of waste material.

Issue	Corrective measures	Impact rating criteria					Significance
		Status	Extent	Duration	Magnitude	Probability	
Waste	No	Negative	2	1	6	5	45 Medium
	Yes	Negative	1	1	4	3	18 Low
Corrective Actions	<ul style="list-style-type: none">Waste must be regularly removed from site and disposed of at a registered waste disposal facility.An appropriate rehabilitation plan should be in place.The work force must be encouraged to sort waste into recyclable and non-recyclable waste.						

Dust generation

Decommissioning of the facility and other infrastructure may lead to an increased amount of airborne particles in the local atmosphere.

Issue	Corrective measures	Impact rating criteria					Significance
		Status	Extent	Duration	Magnitude	Probability	
Dust Generation	No	Negative	2	1	6	3	27 Low
	Yes	Negative	2	1	4	2	14 Low
Corrective Actions	<ul style="list-style-type: none">Use of dust suppression techniques to reduce the dust.						

Indirect Impacts: None Identified.

Cumulative Impacts: None identified.

No-go alternative

Direct Impacts: None of the impacts identified for the decommissioning phase will occur. The facility will require continuous maintenance and the measures identified for the operational phase must be continued.

Indirect Impacts: None identified

Cumulative Impacts: None identified