

# Environmental Management Plan for the Proposed Establishment of Two Townships in Leonardville Omaheke Region

Report

Draft

July 2020

Urban Green cc

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# 1 OVERVIEW

An environmental Assessment (EA) has been conducted for the proposed establishment of three townships within the proclaimed area of the Leonardville Village (see proposed layout in Figure 1-1), in the Omaheke Region. Two of the townships (Amraalsduin Extension 1 and Amraalsduin Extension 2) will be established in order to formalise the existing informal settlement taking place in the proposed areas. The other township establishment (Leonardville Extension 1) will be a newly established mixed land use township.

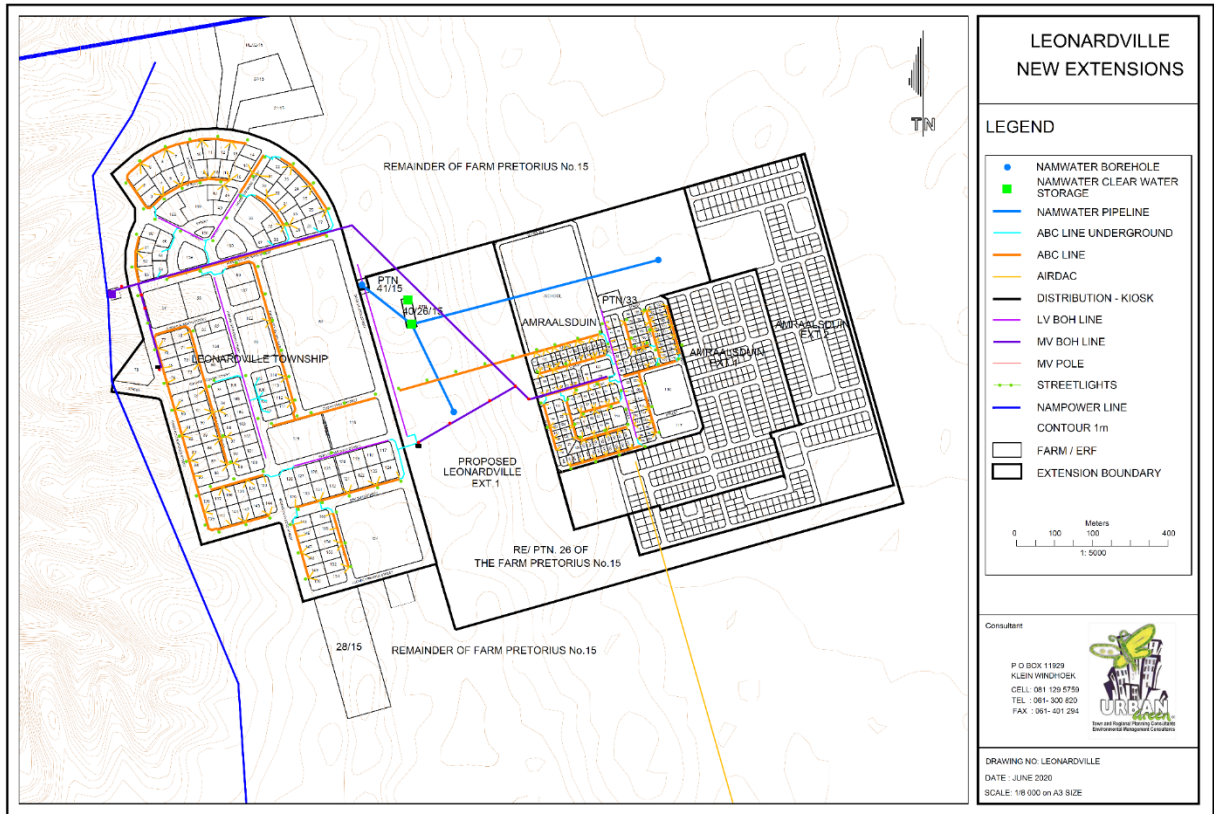


Figure 1-1: View of the proposed two township establishments in Leonardville

## 1.1 Purpose of the EMP

Regulation 8 of the Environmental Management Act's (EMA) (7 of 2007) Environmental Impact Assessment Regulations (2012) requires that a draft Environmental Management Plan (EMP) be included as part of the scoping Environmental Assessment (EA) process. A 'management plan' is defined as:

*"...a plan that describes how activities that may have significant environments effects on the environment are to be mitigated, controlled and monitored."*



An EMP is one of the most important outputs of the EA process as it synthesises all of the proposed mitigation and monitoring actions, set to a timeline and with specific assigned responsibilities. It provides a link between the impacts identified in the EA process and the required environmental management on the ground during project implementation and operation. The purpose of this document is therefore to guide environmental management throughout the following phases of the proposed development, namely construction and operation. The decommissioning of these townships is not foreseen and therefore is not addressed in this EMP.

The following development phases are addressed in this EMP:

- **Construction phase** - during this phase, the services infrastructure will be constructed; and
- **Operation and maintenance phase** - the period during which the services infrastructure will be operational and maintained by the Proponent.

Urban Green Town and Regional and Environmental Management Consultants (Urban Green hereafter), have been appointed by Roads Authority as independent environmental consultants to conduct the required Environmental Assessment (EA) which includes compiling an EMP for the proposed development. This EMP is to be submitted with the scoping EA report as supporting documents to the application for an Environmental Clearance Certificate (ECC) to the Environmental Commissioner at the Department of Environmental Affairs (DEA) of the Ministry of Environment and Tourism. This EMP will also be used by Contractors and Engineers in guiding them during construction of the road.

## 1.2 Legal requirements

The contents of the EMP must meet the requirements Section 8 (j) of the EIA Regulations. The EMP must address the potential environmental impacts of the proposed activity on the environment. It must also include a system for assessment of the effectiveness of monitoring and management arrangements after implementation. The Proponent therefore has the responsibility to ensure that the proposed activity as well as the EA process conforms to the principles of EMA and must ensure that any contractors that they appoint also comply with these principles. Urban Green has been cognisant of these requirements and accordingly this EA process has been undertaken in terms of EMA.

Table 1-1 below lists the requirements of an EMP as stipulated by Section 8 (j) of the EIA Regulations.

Table 1-1: Applicable and relevant Namibian legislations and guidelines for the EA process

Legislation	Permit/Approval/Requirement	Contact Details
Environmental Management Act 2007 Environmental Impact	The amendment, transfer or renewal of the Environmental Clearance Certificate (ECC) (EMA S39-42; EIAR Regs19 & 20).	Mr Damian Nchindo Tel: 061 284 2701

Legislation	Permit/Approval/Requirement	Contact Details
Assessment (EIA) Regulations (EIAR) (GG No. 4878)	Amendments (required every 3 years) to this EMP will require an amendment of the ECC for these developments.  Activities listed in Government Notice (GN) No. 29 of GG No. 4878 require an ECC.	
Labour Act 11 of 2007  Health and Safety Regulations GN 156/1997 (GG 1617).	Adhere to all applicable provisions of the Labour Act and the Health and Safety regulations.	Labour Law Advice:  Tel: 061 309 957
Water Act 54 of 1956	Prohibits the pollution of underground and surface water bodies (S23 (1)).  Liability of clean-up costs after closure/abandonment of an activity (S23 (2)).	Mr Witbooi (Department of Water Affairs):  Tel: (061) 208 7226
Forestry Act No 27 Of 2004 and its regulations of 2015	Provision for the protection of various plant species.  The removal of more than 15 ha of wooded areas requires a permit.	A permit will be needed for removal or destruction of protected species such as <i>Acacia erioloba</i> . The forms can be obtained from Mr T. Uahengo in the permit office at the Ministry of Environment and Tourism, Windhoek. A period of three months should be allowed for obtaining this permit. Species and numbers/quantities involved will need to be specified.
National Heritage Act No 27 Of 2004	Section 48 sets out the procedure for application and granting of permits, such as the permit required in the event of damage to a protected site occurring as an inevitable result of development. Section 51 (3) sets out the requirements for impact assessment.  Part VI Section 55 Paragraphs 3 and 4 require that any person who discovers an archaeological site should notify the National Heritage Council. Contact: Karl Aribeb (061-244 375)	No archaeological/heritage site or cultural remains may be removed, damaged, altered or excavated.

Legislation	Permit/Approval/Requirement	Contact Details
Petroleum Products and Energy Act 13 of 1990 and the Petroleum Products Regulations (PPR)	<p>“No person shall possess or store any fuel except under authority of a licence or a certificate” (PPR: S 3(2)).</p> <p>Par IV of Chapter 3 (Sections 47&amp;48) deals with duties regarding fires and explosions, while (S 4) details measures to be taken in the event of product spills.</p> <p>Section 50 details provisions related to cost recovery in respect of incidents involving product spills.</p>	<p>Ms L. Hangero (Ministry of Mines and Energy)</p> <p>Tel: (061) 284 8111</p>

### 1.3 Assumptions and Limitations

This EMP has been drafted with the acknowledgment of the following assumptions and limitations:

- This EMP has been drafted based on the scoping-level Environmental Assessment (EA) conducted for the proposed establishment of three townships in Leonardville.
- The mitigation measures recommended in this EMP document are based on the risks/impacts identified during the course of the EA process conducted on the proposed developments (as described in the scoping report). Should the scope of the project change, the risks will have to be reassessed and mitigation measures provided accordingly.

### 1.4 Structure of the EMP

The EMP has been structured to include the following sections:

- Chapter 2: Description of the project
- Chapter 3: Roles and responsibilities
- Chapter 4: Planning and design phase management actions
- Chapter 5: Construction phase management actions
- Chapter 6: Operation and maintenance phase management actions
- Chapter 7: Monitoring Programmes
- Chapter 8: Decommissioning
- Chapter 9: Conclusion

## 2 PROJECT DESCRIPTION

The two (2) proposed townships for establishment area as follows (see **Figure 1-1**):

- Amraalsduin Extension 1; and
- Amraalsduin Extension 2.

The proposed townships are located on the Remainder of Portion 26 of the Farm Pretorius No. 15 within the Leonardville local authority area. The Leonardville Village Council (LVC) does not have 'town planning scheme' for the area under its jurisdiction. In the absence of a town planning scheme land use rights are provided for under a given township's 'conditions of establishment' when such a township is proclaimed.

The one Amraalsduin extension is an existing informal residential area. The establishment of Amraalsduin Extension 2 is a new township establishment. The dominant land use for both the townships is residential.

### 2.1 Services Infrastructure

Many of the proposed erven within Amraalsduin Extension 1 are already connected to existing municipal services. The unserviced area of Amraalsduin Extension 1 and proposed Amraalsduin Extension 2 will be connected to all municipal services infrastructure (i.e. electricity, potable water, sewer reticulation, street lighting, solid waste management and road access). The LVC has indicated that they have sufficient capacity to accommodate additional demands in services and maintain the additional services infrastructure to be constructed. The LVC has also indicated that they have sufficient technical staff to carry out the required monitoring and maintenance/repair of the bulk services infrastructure.

### 2.2 Construction Methods

Labour intensive construction methods will be utilised as far as practicably possible. It should be noted that no storm water infrastructure will be constructed as part of the installation of services infrastructure.

The following activities are associated with the construction of services infrastructure:

- Road construction:
  - Clearing of vegetation;
  - Opening of borrow areas (see Figure 1 1) and reinstating thereof afterwards;
  - Scraping of road network (with a grader); and
  - Supply and installation of road signs.
- Laying of pipelines (sewer and potable water):
  - Clearing of vegetation; and



- Digging of trenches and laying of pipelines.
- Construction of electrical infrastructure:
  - Construction of substation (s); and
  - Laying of bulk powerlines.

### 3 ROLES AND RESPONSIBILITIES

The Proponent is ultimately responsible for the implementation of the EMP to ensure compliance. The Proponent may delegate this responsibility at any time, as they deem necessary, for the construction and/or operation and maintenance phases. The delegated responsibility for the effective implementation of this EMP will rest on the following key individuals, the first two of which, namely, the Proponent's Representative and Environmental Control Officer, may be fulfilled by the same person:

- Proponent's Representative;
- Environmental Control Officer; and
- Contractor(s)

#### 3.1 Proponent's Representative

If the Proponent does not personally manage all aspects of the construction and operation phase activities, referred to in this EMP, they should assign this responsibility to a suitably qualified appointed individual - referred to as the Proponent's Representative (PR). The Proponent may decide to assign this role to one person for a full duration of the construction and or operation phase. The PR's responsibilities are outlined in Table 3-1 below.

**Table 3-1: Responsibilities assigned to the Proponent's Representative from Planning and Design phase to operation and maintenance phase**

Responsibility	Development Phase
Managing the implementation of this EMP and updating and maintaining it when necessary	Construction and operation phases.
Management and monitoring of individuals and/or equipment on-site in terms of compliance with this EMP	Construction and operation phases.
Issuing fines for contravening EMP provisions	Construction and operation phases.

### 3.2 Environmental Control Officer

The Proponent should assign the responsibility of overseeing the implementation of the whole EMP on the ground during the construction and operation phases to a designated member of staff, referred to in this EMP as the Environmental Control Officer (ECO). The Proponent may decide to assign this role to one person for both phases or may assign two (2) Environmental ECOs, one for the construction phase and one for the operation phase. The ECO(s) will have the following responsibilities:

- Management and facilitation of communication between the Proponent, PR and any affected members of the public with regard to this EMP;
- Conducting site inspections (recommended minimum frequency is monthly) of all work areas with respect to the implementation of this EMP (monitor the implementation of the EMP);
- Advising the PR on the removal of person(s) and/or equipment/vehicles not complying with the provisions of this EMP;
- Making recommendations to the PR with respect to the issuing of fines for contraventions of the EMP; and
- Undertaking an annual review of the EMP and recommending additions and/or changes to this document.

### 3.3 Contractor(s)

The Contractor is the company appointed to construct the services infrastructure and will be responsible for the implementation of the mitigation measures of this EMP during construction. It is envisaged that various contractors might be appointed at various periods for various tasks throughout the life cycle (construction through to operation) of this development. These can be broadly grouped into Construction Contractors and Operations Contractors. In order to ensure sound environmental management, the relevant sections of this EMP should be included in all contracts of work outsourced, thus legally binding all appointed contractors and sub-contractors. All contractors shall ensure that adequate environmental awareness training of senior site personnel takes place and that all construction workers and newcomers receive an induction presentation on the importance and implications of the EMP. The presentation shall be conducted, as far as is possible, in the employees' language of choice.

The Contractors should keep records of all environmental training sessions, including names, dates and the information presented.

## 4 CONSTRUCTION MITIGATION MEASURES

The mitigation measures for the construction phase detailed in Table 4-1 need to be carried out when the services infrastructure are being constructed.

Table 4-1: Construction phase mitigation measures

Aspect	Impact	Management Requirement
EMP Implementation	Lack of awareness of the provisions of the EMP	<ul style="list-style-type: none"> <li>The Contractor should ensure that all personnel are aware of necessary health, safety and environmental considerations applicable to their respective work as laid out in this EMP. All staff should undergo EMP training (once-off), with 'refresher' training courses taking place on a regular basis (recommended schedule is every four months)</li> <li>The Proponent should appoint a Proponent's Representative (PR) that will act as their on-site implementing agent.</li> <li>There must be a suitable reporting and communication system between the PR and the Contractor to deal with environmental and social issues.</li> <li>The Contractor should sensitise all members of the workforce and personnel according to the specifications in this EMP.</li> <li>The Contractor/PR, as agreed sensitise affected members of the public of the details of construction, including a schedule and contact details of the ECO.</li> </ul>
Monitoring	EMP non-compliance	<ul style="list-style-type: none"> <li>The ECO and/or the PR should monitor the implementation of this EMP on the ground.</li> <li>A penalty/fine system should be explained to all construction personnel and penalties/fines issued for non-compliance (especially for the non-compliant removal of trees).</li> <li>The ECO(s) should inspect the site throughout the construction on a weekly basis.</li> </ul>
Recruitment/employment	Employment opportunity cost	<ul style="list-style-type: none"> <li>Employ labour intensive work processes.</li> <li>Recruit labourers for unskilled work (vegetation clearing, grubbing and flag bearers etc.) from villages/settlements closest to the work site.</li> </ul>
Water resources	Negative conflict concerning water availability	<ul style="list-style-type: none"> <li>If feasible, consider treating municipal wastewater for construction purposes.</li> <li>The grey water and toilet water should be separated at the temporary construction workers campsite and the grey water reused for, among other purposes: <ul style="list-style-type: none"> <li>flushing of toilets;</li> <li>cleaning of equipment; and</li> <li>dust suppression.</li> </ul> </li> </ul>
Water and soil quality	Soil and water (ground and surface) contamination	<ul style="list-style-type: none"> <li>A wash-bay/workshop area should be constructed where vehicles and equipment should be maintained: <ul style="list-style-type: none"> <li>The surface of this area should be impermeable and should drain into an oil-water separator.</li> </ul> </li> <li>All construction related wastewater (e.g. water laden with cement near batching sites, sewage from temporary toilets etc.) should be contained on-site in evaporation ponds or transported to the nearest municipal wastewater</li> </ul>

Aspect	Impact	Management Requirement
		<p>treatment facility.</p> <ul style="list-style-type: none"> <li>• The Environmental Control Officer (ECO(s)) should ensure that a sufficient number of drip trays (at least one for every heavy construction vehicle on-site) are available on-site and that these are utilised in the event of leakage from construction vehicles and equipment.</li> <li>• Servicing of vehicles in the field is not permitted, except in case of emergencies, on condition that oils and lubricants are prevented from spilling through the use of drip trays or other suitable containers.</li> <li>• Spill control preventative measures should be put in place to manage soil and water contamination.</li> <li>• Spilled/waste oil, lubricants, and other hazardous materials must be stored in separate containers on an impermeable surface for transport and disposal at an approved waste disposal site or for collection by an oil recycling company such as WESCO Salvage in Walvis Bay.</li> <li>• Contaminated soils on-site that may have resulted from leakage / spillage construction vehicles or equipment should be removed to a depth dependent on the size and stored in a hazardous waste container.</li> <li>• Ensure that any leaks or broken parts on construction equipment and vehicles should remain the main construction campsite and shall not leave the site until they are repaired. If they cannot be repaired on site, care should be taken when transported elsewhere for repair.</li> </ul>
Air	Air quality impact	<ul style="list-style-type: none"> <li>• Dust control measures should be carried out when by means of water spraying in areas of significant population density; where crops could be negatively affected by dust and in the vicinity of major intersections; and where haul operations intersect with the road.</li> <li>• Construction vehicles like trucks should not be allowed to stand idling during on and off-loading.</li> </ul>
Traffic	Safety impacts	<ul style="list-style-type: none"> <li>• The transportation of building material and personnel from the construction campsite to work sites and back should take place according to a regular/predictable schedule.</li> <li>• Appropriate warning signage should be erected around road works and flag-bearing staff deployed if necessary.</li> <li>• All drivers of construction vehicles should have a valid and applicable driver's license.</li> </ul>
Biodiversity	Loss of biodiversity	<ul style="list-style-type: none"> <li>• Tree species with a stem diameter of 150 mm located outside the servitudes reserved for services infrastructure should be marked and protected.</li> <li>• Contractors their personnel should not remove vegetation for purposes other than those that are project related.</li> <li>• The Contractor should compile a Tree Management Plan which should include the following as a minimum:</li> <li>• All trees (a "tree" is defined here as an indigenous woody perennial plant with a trunk diameter <math>\geq 150</math> mm) that occur within the township boundaries (outside of the services infrastructure footprint), which have not been officially surveyed by a registered land surveyor, should be surveyed and incorporated.</li> <li>• Trees (as defined above) which have been incorporated into the registered survey diagram for the township, should be incorporated into the Contractor's GIS, marked with paint (or other means so as to be readily visible) and</li> </ul>

Aspect	Impact	Management Requirement
		<p>protected;</p> <ul style="list-style-type: none"> <li>• Trees which have been incorporated into the registered survey diagram for the township, which are impossible to conserve, need to be identified, reasons for their removal attached to an application for a permit to remove such trees and the application submitted to the Directorate of Forestry;</li> <li>• The Contractors should only remove trees and vegetation within the project boundary. Trees outside these boundaries should be left unaffected.</li> <li>• Removed vegetation should not be burned. Woody species should be left for the local residents to use as fire wood etc.</li> <li>• Topsoil which is removed during construction of the services infrastructure should be stockpiled preserved where possible. The topsoil should be stockpiled for future site use such as site rehabilitation after construction has been completed.</li> <li>• The removal of material at borrow-pit sites shall be focused where the least significant vegetation exists. If material is only available around significant mature trees, a distance of at least 3 m shall be kept around the base of the trunk, and the roots of such trees should not be exposed. The PR should identify suitable areas from which borrow-material may be extracted.</li> <li>• No off-road driving shall be allowed, except on the agreed upon access roads into the area.</li> <li>• Poaching or collecting of wild animals is prohibited without a permit.</li> </ul>
General waste	General environmental contamination and visual impacts	<ul style="list-style-type: none"> <li>• Contractors should not litter the environment at the road work side or at the camp.</li> <li>• All waste generated during construction should either be kept for recycling or disposed at the nearest designated landfill site.</li> <li>• Waste bins should be provided around the work site and at the main construction campsite.</li> </ul>
Health and Safety	Injury or loss of life	<ul style="list-style-type: none"> <li>• The Contractor must adhere to the regulations pertaining to Health and Safety, including the provision of protective clothing, failing which the Contract may be ended with immediate effect.</li> <li>• Dust protection masks shall be provided to staff members.</li> <li>• All flammable materials used for construction should be properly contained to limit the risks of fire.</li> <li>• Appropriate safety warning signs must be placed at the construction site.</li> <li>• Construction workers should have access to potable water at all times when working to avoid dehydration.</li> <li>• Fuel tanks on-site must be properly banded.</li> <li>• Foam fire extinguishers must be in close proximity to fuel kept on site. Construction personnel should be trained how to use the fire extinguishers.</li> </ul>
HIV Training	Increase in the number of HIV/AIDS infections	<ul style="list-style-type: none"> <li>• The appointed contractor should enlist the services of an individual/institution certified to give training on the consequences of contracting HIV/AIDS. This individual/institution should provide sufficient up-to-date information to amplify the knowledge and experience already gained by participants in respect of HIV and AIDS.</li> </ul>

Aspect	Impact	Management Requirement
		<ul style="list-style-type: none"> <li>• These programmes will be compulsory for all construction personnel including middle management and will also be open for members from the public should they wish to do so.</li> </ul>
Noise	Noise impact	<ul style="list-style-type: none"> <li>• Work should be restricted to reasonable work hours i.e. 07h00-17h00.</li> <li>• If unavoidable, work outside reasonable hours should be communicated in advance (minimum 2 weeks' notice)</li> </ul>
Archaeology	Loss of heritage resources	<ul style="list-style-type: none"> <li>• Should a heritage site or archaeological site be uncovered or discovered during the construction phase of the project, a "chance find" procedure should be applied in the order they appear below:</li> <li>• If operating machinery or equipment stop work;</li> <li>• Demarcate the site with danger tape;</li> <li>• Determine GPS position if possible;</li> <li>• Report findings to the construction foreman;</li> <li>• Report findings, site location and actions taken to superintendent;</li> <li>• Cease any works in immediate vicinity;</li> <li>• Visit site and determine whether work can proceed without damage to findings;</li> <li>• Determine and demarcate exclusion boundary;</li> <li>• Site location and details to be added to the project's Geographic Information System (GIS) for field confirmation by archaeologist;</li> <li>• Inspect site and confirm addition to project GIS;</li> <li>• Advise the National Heritage Council (NHC) and request written permission to remove findings from work area; and</li> <li>• Recovery, packaging and labelling of findings for transfer to National Museum.</li> <li>• Should human remains be found, the following actions will be required: <ul style="list-style-type: none"> <li>• Apply the chance find procedure as described above;</li> <li>• Schedule a field inspection with an archaeologist to confirm that remains are human;</li> <li>• Advise and liaise with the NHC and Police; and</li> <li>• Remains will be recovered and removed either to the National Museum or the National Forensic Laboratory.</li> </ul> </li> </ul>

## 5 OPERATION PHASE MITIGATION MEASURES

During this phase, the road and its related infrastructure will be operational and maintained by the Proponent. The Proponent will ensure that the mitigation measures presented in Table 5-1 are adhere to.

Table 5-1: Operation phase mitigation measures



Environmental Feature	Impact	Management Actions
Ground and surface water	Surface and groundwater contamination	<ul style="list-style-type: none"><li>• Sewage infrastructure (storage and conveyance) should be monitored for leakage according to a regular schedule.</li><li>• A maintenance/repair plan should be compiled for sewage infrastructure (storage and conveyance).</li></ul>

## 6 CONCLUSION

This EMP was drafted based on the anticipated and identified impacts of the proposed development of the two townships on the surrounding environment. The mitigation measures and recommendations were provided to minimise where impacts could not be avoided.



**APPENDIX A: LIST OF PROTECTED TREES**

No.	Species	Status	Picture	Tree Atlas Link
1.	<i>Acacia erioloba</i> (Camel thorn)	Protected - Forestry Act	 <p>By I (user Neelix) am the originator of this photo, and hold the copyright. I release it to the public domain - Transferred from en.wikipedia to Commons by Quadell using CommonsHelper., Public Domain,  <a href="https://commons.wikimedia.org/w/index.php?curid=6825138">https://commons.wikimedia.org/w/index.php?curid=6825138</a></p>  <p>By Harald Süpfle - Own work, CC BY-SA 2.5,  <a href="https://commons.wikimedia.org/w/index.php?curid=34046067">https://commons.wikimedia.org/w/index.php?curid=34046067</a></p>	<a href="http://treemap.biodiversity.org.na/viewspec.php?nr=6">http://treemap.biodiversity.org.na/viewspec.php?nr=6</a>
2.	<i>Ziziphus mucronata</i>			

**APPENDIX B - MONITORING CHECKLIST**

Report No:.....

Date:.....

Issue	Observation	Remedial action	Compliance
<b>Construction - EMP Implementation</b>			
1. Have all employees undergone EMP training?			
2. Have all affected local residents been informed of the expected scheduling of the construction activities?			
<b>Construction - Monitoring</b>			
3. Does the PR and/or ECO monitor the implementation of the EMP?			
4. Has a penalty/fine system been put in place and explained to construction personnel?			
5. Are weekly site inspections carried out?			
<b>Construction - Recruitment</b>			
6. Are labour intensive work processes employed where possible?			
7. Have local residents been employed for unskilled construction work?			

Issue	Observation	Remedial action	Compliance
<b>Construction - Water Resources</b>			
1. Is the shower water and toilet water from the temporary construction workers campsite collected separately?			
2. Is the shower water being reused (for flushing toilets, cleaning equipment, dust suppression etc.)?			
<b>Construction - Water and Soil</b>			
3. Has a washbay/workshop area been constructed?			
4. Is the washbay/workshop lined with an impermeable surface sloping towards an oil-water separator?			
5. Is the washbay/workshop bunded and leakproof?			
6. All maintenance of plant and equipment takes place in workshop?			
7. All plant equipment and vehicles are well maintained (no leaks)?			
8. Is construction related wastewater (toilet water, water laden with hydrocarbons or cement) disposed of appropriately?			

Issue	Observation	Remedial action	Compliance
9. All heavy vehicles and machinery have drip trays, which are checked and emptied daily?			
10. Contaminated soil removed to an appropriate depth and stored as hazardous waste?			
11. Have all waste hydrocarbons (contaminated soil etc.) been disposed appropriately (i.e. sent to an appropriate hazardous waste treatment facility)?			
12. Workforce aware of procedures in the event of spills/leaks?			
<b>Construction - Air Quality</b>			
13. Is dust suppression carried out at work areas which are located close to houses?			
<b>Construction - Traffic</b>			
14. Are building materials and workers transported to work areas according to a predictable schedule?			
15. Is appropriate temporary road warning signage visible along public roads affected by construction activity?			
16. All drivers have appropriate			

Issue	Observation	Remedial action	Compliance
licenses?			
<b>Construction - Biodiversity</b>			
17. Have trees with a stem diameter of 150 mm been marked and surveyed?			
18. Have these trees been registered on the registered survey diagram for the township?			
19. Has the Contractor been supplied with a map clearly indicating the locations of marked trees?			
20. Have any trees been removed needlessly?			
21. Has the Contractor formally requested permission from the LVC for any marked trees they deem necessary to remove?			
22. Has topsoil been stockpiled in a demarcated area?			
23. Has the borrowing of material focused on least sensitive areas within the borrow pit?			
24. Have any incidents of poaching occurred?			
<b>Construction - General Waste</b>			
25. Are all work areas and the			

Issue	Observation	Remedial action	Compliance
temporary workers campsite tidy?			
26. Are there sufficient waste bins at work areas and at the temporary workers campsite?			
27. Has domestic waste been removed to the nearest municipal landfill?			
<b>Construction - Health and Safety</b>			
28. Sufficient stock of personal protective equipment (ear muffs, dust masks, safety boots, gloves, hard hats etc.)?			
29. Have the workforce undergone fire safety training? Are the workforce aware of procedures in the event of a fire?			
30. Safety signage provided at fuel storage areas?			
31. Fire extinguishing equipment available on-site and not expired?			
32. Operation of fuel depot assigned to appropriately trained members of workforce?			
33. No smoking in hazardous areas?			
34. Fuel tanks on-site are properly bunded?			

Issue	Observation	Remedial action	Compliance
<b>Construction - HIV/AIDS Training</b>			
35. Has a suitably qualified person been appointed to give HIV/AIDS training to all construction personnel?			
36. Have all workers received HIV/AIDS training?			
<b>Construction - Noise</b>			
37. Is construction work restricted to reasonable work hours (07h00-17h00)?			
38. If work is done outside reasonable work hours, have the nearby residents been informed in advance?			
<b>Construction - Archaeology</b>			
39. Have any human remains been unearthed during excavation works?			
40. If so, has the archaeology chance find procedure been followed?			
<b>Operation - Ground and Surface Water</b>			
41. Has the sewage storage infrastructure been inspected for leaks?			
42. Has the sewage conveyance			

Issue	Observation	Remedial action	Compliance
infrastructure been inspected for leaks?			
43. Has a maintenance/repair plan been compiled for sewage infrastructure (storage and conveyance)?			