# ENVIRONMENTAL MANAGEMENT PROGRAMME

# PROPOSED KLAARWATER LOW INCOME HOUSING DEVELOPMENT, ETHEKWINI METROPOLITAN MUNICIPALITY, KWAZULU-NATAL.

***Draft EMPr***

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**Terratest (Pty) Ltd Reference No. 41633**

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**Prepared by:**


**TERRATEST (PTY) LTD**

PO Box 794
Hilton
3245
Telephone: (033) 343 6700
Contact: Riona Patak
Email: patakr@terratest.co.za

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# LIST OF ACRONYMS

| | | |
|---|---|---|
| DWS | - | Department of Water and Sanitation |
| EDTEA | - | Economic Development, Tourism and Environmental Affairs - Provincial |
| EMPr | - | Environmental Management Programme |
| ECO | - | (Independent) Environmental Control Officer |
| MSDS | - | Material Safety Data Sheet |
| NEMA | - | National Environmental Management Act (Act 107 of 1998) |
| WUL | - | Water Use Licence |

# 1. INTRODUCTION

Terratest (Pty) Ltd has been appointed by eThekwini Municipality to undertake the environmental services required for the construction works associated with the formalization of low income housing in three areas located within Klaarwater, near Pinetown, eThekwini Metropolitan Municipality, KwaZulu-Natal.

In accordance with the Integrated Environmental Management Guidelines published by the Department of Environmental Affairs & Tourism (DEAT) in 1992, the purpose of an EMPr is *"to describe how negative environmental impacts will be managed, rehabilitated or monitored and how positive impacts will be maximised".*

## 1.1 National Environmental Management Act, (Act 107 of 1998)

Section 28 of NEMA (National Environmental Management Act, Act 107 of 1998) which pertains to "Duty of care and remediation of Environmental Damage" states that:

*"(1) Every person who causes, has caused or may cause significant pollution or degradation of the environment, must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot be reasonably avoided or stopped, to minimise and rectify such pollution or degradation of the environment."*

This EMPr must form an integral part of the contract documents for the proposed construction, as it outlines the methodology & duties required such that construction can be achieved in an environmentally sustainable manner; with particular reference to the prevention and mitigation of environmental impacts caused by construction activities associated with the project. Such mitigation measures will have a financial impact on the projects costing's.

This EMPr is a dynamic document that may need to evolve during its implementation period, such that it recognises any new issues that may arise; or changes in the parameters of identified issues which can be addressed with the required/amended mitigation.

## 1.2 The Polluter-Pays Principle

This principle provides for *"the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimizing further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment."* The Polluter Pays Principle must be rigorously applied throughout the Construction Phase of this project.

## 1.3 Progressive Rehabilitation

Progressive rehabilitation must also be undertaken throughout the Construction Phase of the project with areas that have been impacted on. Rehabilitation should commence as soon as construction is completed in the specific area and not at the end of the entire project.

# 2. PROJECT DETAILS

The project consists of formalisation of housing in three areas located within Klaarwater, near Pinetown, KwaZulu-Natal, including the provision and upgrading of sewers and other services. The three areas comprise the following:

Phase 1A - 30°51'24.031"E; 29°51'44.52"S

The development footprint of Phase 1A, including service infrastructure, is approximately 4.18 hectares. Development on this site will comprise formalisation of existing housing which is currently established on the site, and the installation and upgrading of service infrastructure within the boundaries of the development footprint. The site is considered to be totally transformed from its natural state as a result of the existing informal housing. Access to this site will be off the existing Wiltshire Road access point. This access road will be upgraded and formalised to provide access to the proposed low income houses.

Phase 1B - 30°51'39.627"E; 29°51'36.463"S

The development footprint of Phase 1B, including service infrastructure, is approximately 3.5 hectares. Development on this site will comprise formalisation of existing housing which is currently established on the site, and the installation and upgrading of service infrastructure within the boundaries of the development footprint. The site is considered to be totally transformed from its natural state as a result of the existing informal housing. Access to this site will be off the existing Wiltshire Road access point. This access road will be upgraded and formalised to provide access to the proposed low income houses.

Phase 1C - 30°51'38.934"E; 29°51'22.723"S

The development footprint of Phase 1C, including service infrastructure, is approximately 1.19 hectares. The site is currently undeveloped however it has been highly disturbed through anthropogenic impacts, including illegal sand mining. Development on this site will comprise greenfield development of low income housing and will be an extension of the existing Nazareth Island low income housing complex. Service infrastructure will be extended from Nazareth Island to within the development footprint to service the proposed low income houses. Access to the erven will be from the extension of existing Nazareth Island roads within the development footprint, namely the extension of 211492 St, 411493 St, 211494 St and 211495 St.

At present, housing in the area comprises primarily informal settlement interspersed with some formal settlement. In order to do the upgrade, sub-standard housing will be totally demolished so that it may be replaced by buildings and services of the higher and more acceptable standard. As the process involves a time period when people will, in effect, be without their housing, the project includes an area designated for temporary housing use and, as such, will be occupied while the proposed housing facilities are being upgraded. The temporary housing area will be located on the footprint of the proposed Phase 1C Site which is currently undeveloped but has been largely transformed through illegal sand mining activities. As per the housing beneficiary's requests, community members will construct their own temporary dwellings on the site. Temporary services such as ablution blocks and water stands will however be installed on this site which will be fenced and secured by the Applicant prior to the temporary occupation of the site by the housing beneficiaries.

# 3. LEGISLATIVE REQUIREMENTS

## 3.1 Signing of the EMPr

The Acknowledgement Form in Appendix 2 of the EMPr must be signed by the Authorisation Holder, all Contractors and sub-contractors appointed to undertake works on the site, and the Environmental Control Officer (ECO); acknowledging that all parties are familiar with the requirements of the EMPr.

## 3.2 Legislation

Of importance are all national, provincial and municipal by-laws and regulations. Statutes are amended periodically and it is the Authorisation Holder's responsibility to identify legislation relevant to their proposed activities at the time.

# 4. COMPLIANCE WITH THE EMPr

## 4.1 Roles and Responsibilities

The implementation of this EMPr requires the involvement of several stakeholders, each fulfilling a different, but vital role to ensure sound environmental management during the construction phase. The stakeholders are discussed below.

### 4.1.1. Department of Economic Development, Tourism and Environmental Affairs (EDTEA)

EDTEA is the designated provincial authority responsible for authorising the environmental application EMPr related to the project. EDTEA has overall responsibility for ensuring that the Applicant complies with the Conditions of EA and EMPr.

### 4.1.2. Applicant: eThekwini Municipality

Under South African environmental legislation, the Applicant/Employer is accountable for the potential impacts of the activities that are undertaken and is responsible for managing these impacts. The eThekwini Municipality as the Applicant/Employer therefore has overall environmental responsibility to ensure that the implementation of this EMPr complies with the relevant legislation and the conditions of the EA.

### 4.1.3. Environmental Control Officer (ECO)

The independent ECO appointed will monitor and review the on-site environmental management and implementation of this EMPr by the contractor throughout the project. This will be done by conducting site audits and issuing monthly audit reports to the relevant parties.

EDTEA requires that the ECO be at the forefront of all environmental management issues.

### 4.1.4. Environmental Manager / Health, Safety and Environmental Officer (HSE)

The Environmental Manager, or his appointee, will conduct daily inspections of the site and plant, to identify potential non-compliances and potential negative impacts to the environment. The inspections will take the form of an inspection sheet and will be kept as a record. Findings thereof will be made available to the ECO and raised in construction meetings for mitigation or avoidance measures.

### 4.1.5. Contractor

This refers to the main contractor(s) appointed by the Employer for the construction of the project, or a portion of the project i.e. subcontractors. The main contractor(s) will be responsible for complying with the EMPr commitments and any other legislative requirements, as applicable to the contractors' appointment for the proposed development. The contractor/s will also be responsible for drafting method statements appropriate to activities under his direct control.

The contractor must ensure that all employees under their appointment receive appropriate training prior to the commencement of construction, taking cognisance of this EMPr and the Conditions of the EA.

### 4.1.6. Organisational Structure

Details of the organizational structure are presented in Figure 1. The structure illustrates the reporting procedures for all stakeholders responsible in the implementation of this EMPr.

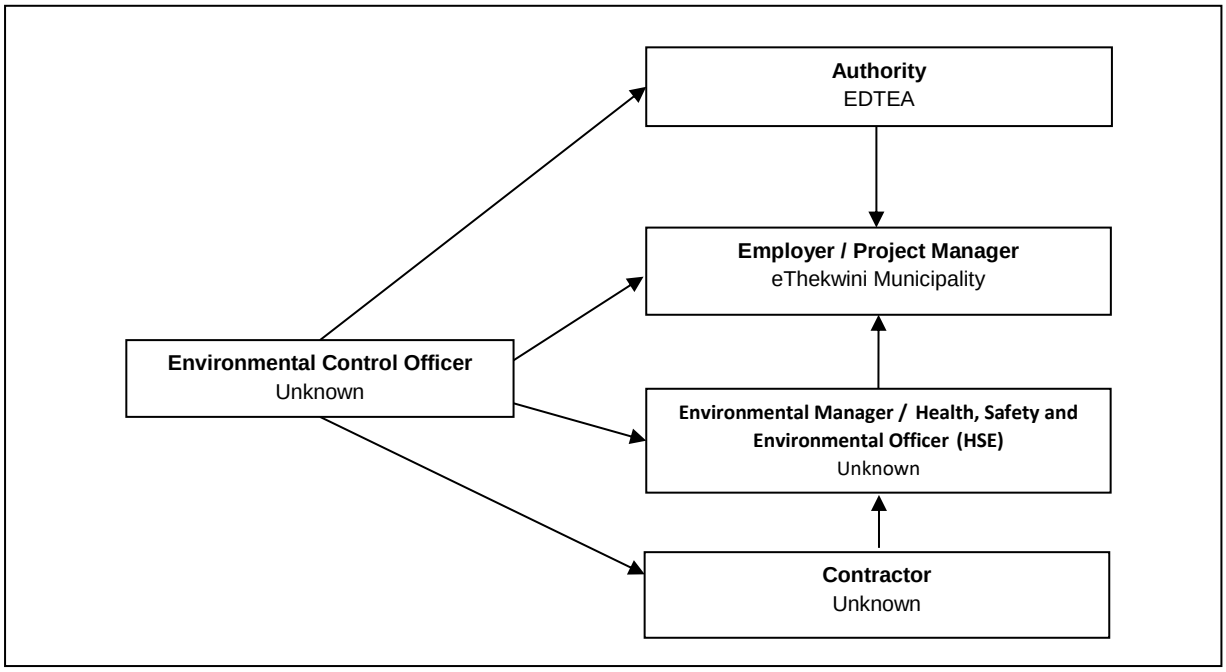



***FIGURE 4-1:*** *Organisational Structure*

## 4.2 Record Keeping, Monitoring and Compliance

During the construction phase the Authorisation Holder must monitor the Contractor's adherence to the approved impact prevention procedures on a weekly basis and must issue the Contractor a Notice of Non-compliance whenever transgressions are observed. The Authorisation Holder must document the nature and magnitude of any non-compliance, the action taken to correct the non-conformance, the actions taken to mitigate its effects and the results of those actions. This reporting must be kept on file for inspection by the ECO and/or the Department of Economic Development, Tourism and Environmental Affairs (EDTEA) when required. Significant, emergency or ongoing non-compliance findings must be immediately reported to the appointed Project Manager / Engineer for the project who must report these to the Department of Economic Development, Tourism and Environmental Affairs (EDTEA) or any other state department who may have jurisdiction over the matter.

During the construction phase of bulk services infrastructure, the Authorisation Holder must appoint a competent independent individual (Environmental Control Officer – ECO) to monitor and report on the contractor/s compliance with the conditions contained within the Environmental Authorisation & Environmental Management Programme (EMPr). Monitoring audits and reporting must take place on a monthly basis during the construction phase and a closeout audit must be undertaken post rehabilitation of areas affected by construction activities.

In the case of non-compliance giving rise to physical environmental damage or destruction, the Project Manager, in consultation with the ECO and the eThekwini Municipality: Environmental Planning and Climate Protection Department (EPCPD), shall be entitled to undertake, or to cause to be undertaken, such remedial works as may be required to make good such damage and to recover from the contractor the full costs incurred in doing so. All parties, however, must be mindful of the fact that any remedial work may trigger a separate Listed Activity not included in the initial application for Environmental Authorisation and therefore may require its own separate environmental assessment prior to implementation.

In the event of a dispute or difference of opinion between any parties arising out of the interpretation of the conditions of the EMPr, or a disagreement regarding the implementation or method of implementation of conditions of the EMPr, the Project Manager will act as the arbitrator, unless the Project Manager feels the need to seek specialist advice.

The Project Manager shall at all times have the right to stop work and/or certain activities on site in the case of non-compliance or failure to implement remediation measures. The Project Manager has the authority to instruct the Authorisation Holder or Contractor to cease a particular construction activity causing, or liable to cause, significant environmental damage and issue fines or penalties for non-compliance with the EMPr as per Table 4-1.

## 4.3 Failure to complete corrective actions

In the event that the Authorisation Holder or Contractor fails to complete the corrective action within the allocated timeframes, the Project manager / Engineer must:

- Formally (in writing) inform the EDTEA; and
- Request that a Stop-work Order be issued to the Authorisation Holder or Contractor by the EDTEA.

The Authorisation Holder is responsible for resolving any issues with the Contractor. Failure to address any non-compliance may lead to the termination of the contract and removal of the Contractor and staff from the site.

The Authorisation Holder or Contractor are deemed not to have complied with the EMPr if:

- Within the boundaries of the site there is evidence of a contravention of clauses of the EMPr; or
- Environmental damage occurs due to negligence / inappropriate actions taken by the Authorisation Holder or Contractor or any of his staff.

On receiving a Notice of Non-compliance, the Authorisation Holder and Contractor is required to swiftly address the issue/s taking all corrective actions required to rectify the situation. Penalties can be applied for non-compliant situations. Penalties/fines are advocated to ensure corrective measures are successfully undertaken and the necessary standard of rehabilitation is achieved. The penalties imposed per incident or violation can be imposed by EDTEA or the Applicant.

The penalty associated with a chemical spill is not a set amount but will depend on the nature and extent of the spill; the cost of any soil and / or groundwater monitoring; and any soil and / or groundwater remediation required by Authorities will be to the Authorisation Holder or Contractors account.

The imposition of such penalties / fines will not preclude the relevant Competent Authority from applying an additional penalty in accordance with statutory powers.

Failure to address the cause must be reported to the relevant Authority for them to deal with the transgression as deemed fit.

### 4.4 Environmental Awareness Training

The contractor shall ensure that adequate environmental awareness training of senior site personnel takes place and that all construction workers receive an induction presentation on the importance and implications of the EMPr and Conditions of the EA.

The presentation shall be conducted, as far as possible, in the employees' language of choice.

As a minimum, training shall include:

- Explanation of the importance of complying with the EMPr;
- Discussion of the potential environmental impacts of, and environmental risks presented by, construction activities;
- Employees' roles and responsibilities, including emergency preparedness;
- Explanation of the mitigation measures that must be implemented when carrying out their activities;
- Explanation of the specifics of this EMPr; and
- Explanation of the management structure of individuals responsible for matters pertaining to the EMPr.

The contractor shall keep records of all environmental training sessions, including names, dates and the information presented. These records will be presented to EDTEA and the ECO on request during audits.

## 5. GENERAL CONSTRUCTION PHASE EMPR REQUIREMENTS

Construction Phase EMPr activities are those relating to the preparation of the site prior to commencing the Construction Phase, as well as the construction and rehabilitation activities themselves.

### 5.1 Preparation of Method Statements / Management Plans

Method Statements and/or Management Plans must be submitted by the Contractor to the Authorisation Holder for approval for the following activities prior to any construction commencing on site:

1. Construction camp locality and layout plan;
2. Management, use and storage of hazardous goods / substances, including petrochemicals;
3. Stormwater management at the construction Camp/s and at the construction work front;
4. Traffic, accommodation and construction vehicle movement routes during the Construction Phase;
5. Spill Contingency Plan; and
6. Emergency Response Procedures.

The Authorisation Holder must monitor the implementation of the Method Statements and Management Plans during the Construction Phase of the project.

### 5.2 Permit Requirements

The necessary permits (if any) must be obtained by the Authorisation Holder prior to the commencement of any activities requiring such a permit. These could include permits for activities such as:

- The disposal of effluent on site; and
- Impacting on water resources, would constitute a Water Use Licence (WUL) from the Department of Water and Sanitation (DWS).

## 6. AMENDMENTS TO THE EMPr

This EMPr outlines the environmental practices and mitigation measures to be adhered to during the Construction Phase, in order to curtail and/or minimise potential negative impacts and promote sound environmental practises.

The EMPr is a dynamic document and is subject to change as and when required. Amendments to the EMPr will require consultation and approval from the EDTEA: Compliance and Monitoring Department.

## 7. SPECIALIST RECOMMENDATIONS

All recommendations within the Geotechnical Assessment must be adhered to including the following recommendations for the design and construction of the building platform should be followed:-

- All unsuitable fill, i.e. garden refuse and general waste, should be removed to spoil.
- All vegetation and organically enriched topsoil to a depth of between 100 and 200mm should be scalped off the areas over which fills are to be built, and stockpiled for later topsoiling of slopes, open space and garden areas.
- Where fills are to be built, the natural ground surface should be well compacted before fill placement commences. This is to minimise the possibility of collapse settlement in the underlying colluvial sands. A three pass operation using a 10 tonne padfoot vibratory roller should suffice.
- Fills should be compacted in minimum 200mm loose layers to at least 93% Modified AASHTO maximum dry density. Boulders larger than 2/3 of the layer thickness should not be included in the fill material.
- Pockets or layers of more clayey materials encountered in the cuttings, particularly in the road bed, which are likely to give rise to compaction and moisture retention problems should be selectively spoiled.
- The building platforms should be graded to direct water away from the fill and cut edges.
- Fill embankment slopes should not be steeper than 1 vertical to 2 horizontal.
- Cuts in soil should not be steeper than 1 vertical to 1.5 horizontal. The slopes will be very susceptible to erosion until properly vegetated.
- Mere cut and fill slopes exceed 3.0 metres in height, special consideration should be given to their design.
- Cuts in sandstone bedrock may range from subvertical to 1 vertical to 0.5 horizontal, depending on the nature of jointing and structure of the rockmass.
- Requirements for subsoil drainage behind fills and at the toe of cuttings will need to be assessed during construction.
- Extreme care should be taken to mitigate the effect of seasonal rain on the highly erodible sandy soils making up fills and cuts. Grassing should be cared out as soon as possible after the earthworks phase is complete.

All recommendations within the Wetland and Biodiversity Assessment must be adhered to including a monitoring programme. The programme will include the following actions:

- The Environmental Control Officer (ECO) who oversees the various components of the project must be thoroughly familiar with the recommendations put forward in Section 9 of the report, and also with the content of the project Environmental Management Programme. The construction process must then be monitored for compliance with the mandated actions.

Monitoring must be done at intervals which are appropriate to the work being done, but on a monthly basis as a minimum.

- The ECO must have sight of the contractors' method statements prior to their implementation and must also have sight of the contractors' time schedules and plans.
- The ECO will be able to discuss with the Resident Engineer issues that could potentially stop works.
- The ECO must take especial care to see that the handling and removal of rubble and other builders wastes are done properly.
- A post-construction monitoring programme must be set in place. It will include examination of at least the following items:
  - **Alien weed invasion**: No alien weed invasion may be tolerated within a year of completion of the project. This point is of particular importance as the area is so prone to alien weed invasion.
  - **Rehabilitation of the pipeline trenches**: The correct placement of the soil layers must be done. This is of key importance in the watercourse crossings. At such sites the compaction of the soil must also be done correctly done. The trenches must be revegetated with either the recommended grass mix or with salvaged plants which are demonstrably viable.
  - **Rehabilitation of the working servitude:** The working servitudes at all watercourse crossings, whether road or pipeline, must be returned to their pre-construction condition or better.
  - **Stability of watercourse banks:** The banks must be left in a stable condition.
  - **Soil erosion:** No soil erosion anywhere in the working area, including the site camp and laydown areas, may be accepted.
  - **Sewer pipe leakage or spillage:** All new pipes must be carefully surveyed for signs of leakage or spillage. Problems must be reported immediately.

# 8. ENVIRONMENTAL MANAGEMENT PROGRAMME

***TABLE 8-1: Pre-Construction Management Actions and Outcomes***

| PRE-CONSTRUCTION PHASE | | | | |
|---|---|---|---|---|
| **Impact management objectives of an EMPr** | **Impact management actions of an EMPr** | **Impact management outcomes of an EMPr** | **Responsibility** | **Frequency/Timing** |
| *A thing aimed at or sought, a goal* | *The process of doing something, typically to achieve an aim* | *The way a thing turns out; a consequence* | | |
| Prevent soil contamination | • Hazardous materials/dangerous goods must be stored in a clearly marked, lockable, designated storage area;<br>• Hazardous materials/dangerous goods must be stored within a bunded area which has the capacity to store 110% of the volume of the materials stored; and<br>• Chemical toilets must be placed at least 50m outside any watercourse. A registered chemical waste company is to be used to remove waste from the chemical toilets on site. Proof o servicing of chemical toilets must be kept by the contractor, in the on-site environmental file, for review purposes by the ECO if needed. | Avoidance of soil loss<br>Re-use of viable soils in rehabilitation<br>Avoidance of disposal of hazardous waste | Implementation:<br>Contractor<br><br>Inspection:<br>EM<br><br>Verification:<br>ECO | Implementation:<br>Ongoing<br><br>Inspection:<br>*Ad hoc*<br><br>Verification:<br>Monthly |
| Prevent soil loss | • Soil should be stockpiled in such a way as to minimize erosion;<br>• Topsoil should be stockpiled such that re-use in rehabilitation is feasible;<br>• The exposed soil surfaces should be protected from wind derived fugitive dust generation, if to be exposed for a period exceeding 2 months or in high wind conditions. | Re-use of viable soil in rehabilitation<br>Low / No fugitive dust deposition<br>No loss of topsoil or soils from the site during construction | Implementation:<br>Contractor & Engineer<br><br>Inspection:<br>EM and ECO<br><br>Verification:<br>ECO | Implementation: Pre-construction and prior to implementation of rehabilitation<br><br>Inspection:<br>Prior to implementation<br><br>Verification: |

| PRE-CONSTRUCTION PHASE | | | | |
|---|---|---|---|---|
| **Impact management objectives of an EMPr** | **Impact management actions of an EMPr** | **Impact management outcomes of an EMPr** | **Responsibility** | **Frequency/Timing** |
| | • Where exposed surfaces will be exposed to surface run-off, diversion of surface run-off must be implemented to ensure erosion is avoided; and<br>• The re-use of soil and stockpiles must be prioritised in the construction phase, where geotechnically appropriate. | | | Prior to implementation |
| Preservation of flora | • All construction areas must be demarcated prior to construction to ensure that the footprint of the impacts are limited (including areas where vehicles may traverse); and<br>• All alien invasive species within the construction and development footprint must be removed and follow up monitoring and removal programmes should be initiated once construction is complete. | A robust landscaped open space with appropriate indigenous vegetation to support flora and fauna | Implementation: Contractor Specialist when required<br><br>Inspection: EM and ECO<br><br>Verification: ECO | Implementation: Pre-construction and during bulk earthworks<br><br>Inspection: Pre-construction;<br><br>Verification: Pre-construction |
| Preservation of fauna | • Hunting and/or fishing activities on site are prohibited. This includes the setting of traps, or the killing of any animal caught in construction works;<br>• No animal, reptile or bird of any sort found on site may be killed. This specifically includes snakes or other animals considered potentially dangerous discovered on site. If such an animal is discovered on site an appropriately skilled person should be summoned to remove the animal from the site. Consideration should be given to selection and nomination of such a person prior to site establishment. If no-one is available, training should be provided to at least two site staff members; and | A robust landscaped open space with appropriate indigenous vegetation to support flora and fauna | Implementation: All<br><br>Inspection: EM<br><br>Verification: ECO | Implementation: Construction to closure<br><br>Inspection: *Ad hoc*<br><br>Verification: *Ad hoc* |

| PRE-CONSTRUCTION PHASE | | | | |
|---|---|---|---|---|
| **Impact management objectives of an EMPr** | **Impact management actions of an EMPr** | **Impact management outcomes of an EMPr** | **Responsibility** | **Frequency/Timing** |
| | • Environmental training must be conducted by the responsible ECO. | | | |
| Prevent increased surface runoff | • Care must be taken to ensure that in removing vegetation adequate erosion control measures are implemented; and<br>• A stormwater management plan (SWMP), including sufficient erosion-control measures, has been compiled in consultation with a suitably qualified environmental practitioner / control officer during the detailed design phase prior to the commencement of construction. This SWMP must be stringently implemented on site. | A well covered dense rehabilitated open space to reduce run-off energy and reduce peak flows. Establishment of approved water retention facility | Implementation:<br>Contractor & Engineer<br><br>Inspection:<br>EM & Engineer<br><br>Verification:<br>ECO | Implementation:<br>Construction to closure<br><br>Inspection:<br>Pre-construction<br><br>Verification:<br>Pre-construction |
| Preserve air quality | • Heavy vehicles and machinery should be serviced regularly to minimise exhaust fume pollution;<br>• Soil stockpiles must be located in areas to limit the erosive effects of the wind, which will limit dust;<br>• Removal of vegetation must be avoided until such time as soil stripping is required, which will limit dust;<br>• Limit vehicle speeds on unpaved roads to 20 km/h to limit the amount of dust generated;<br>• Haulage distances must be at a minimum;<br>• Dust control measures should be implemented when warranted. The use of water as a dust suppression measured is not preferred, and alternative measures should be utilised; | No fugitive dust exceeding SANS regulations or creating nuisance conditions | Implementation:<br>Contractor<br><br>Inspection:<br>EM<br><br>Verification:<br>ECO | Implementation:<br>Pre-construction for placement of stockpiles and stabiliser use<br>Prior to establishment on site for plant<br><br>Inspection:<br>As above and on an *ad hoc* basis for daily management aspects<br><br>Verification:<br>Pre-construction |

| PRE-CONSTRUCTION PHASE | | | | |
|---|---|---|---|---|
| **Impact management objectives of an EMPr** | **Impact management actions of an EMPr** | **Impact management outcomes of an EMPr** | **Responsibility** | **Frequency/Timing** |
| | • Environmentally friendly soil stabilisers may be used as additional measures to control dust on gravel roads and construction areas;<br>• All equipment must be kept in good working order;<br>• Equipment must be operated within its specifications and capacity and must not be overloaded; and<br>• All machinery/plant must be serviced and lubricated regularly to ensure a good working order.<br>• | | | |
| Prevent noise pollution | • Potential increase in noise from the operation of machinery and equipment, as well as the construction vehicle traffic;<br>• Potential disturbance to the resident's adjacent to the construction site;<br>• Ensure that the potential noise source will conform to the South African Bureau of Standards recommended code of practice, SANS Code 0103:1983, so that it will not produce excessive or undesirable noise when it is released; and<br>• All of the Contractors' vehicles shall be fitted with effective exhaust silencers and shall comply with Road Traffic Act (Act 29 of 1989) when any such vehicle is operated on a public road as well as complying with the South African Bureau of Standards recommended code of practice and the South African National Standard (SANS) Code | No ambient noise impacts relating to plant operations<br>Compliance to municipal by-laws<br>No nuisance conditions created | Implementation:<br>Contractor<br><br>Inspection:<br>EM<br><br>Verification:<br>ECO | Implementation:<br>Pre-construction and *ad hoc*<br><br>Inspection:<br>Pre-construction and *ad hoc*<br><br>Verification:<br>*Ad hoc* and monthly as a minimum |

| PRE-CONSTRUCTION PHASE | | | | |
|---|---|---|---|---|
| **Impact management objectives of an EMPr** | **Impact management actions of an EMPr** | **Impact management outcomes of an EMPr** | **Responsibility** | **Frequency/Timing** |
| | 0103:1983, for construction plant noise generation. | | | |
| Prevent visual unsightliness | • Implement speed limits to prevent the generation of dust; and<br>• The presence of the construction machinery on site will have a temporary visual impact which will practically be mitigated on receipt of complaints. | The prevention or the mitigation of unsightliness<br>No fugitive dust exceeding SANS regulations or creating nuisance conditions<br>No noise related complaints | Implementation:<br>Contractor<br><br>Inspection:<br>EM & ECO<br><br>Verification:<br>ECO | Implementation:<br>Pre-construction and *ad hoc*<br><br>Inspection:<br>Pre-construction and *ad hoc*<br><br>Verification:<br>*Ad hoc* and monthly as a minimum |
| Prevent unnecessary impedance of traffic | • Potential increase of construction vehicles entering and exiting the site could create possible lane closures, traffic delays and congestion during the pre-construction phase;<br>• Provide for appropriate flagmen and signage on the roadside in compliance with the requirements of relevant road department authority;<br>• Provide sufficient area for the storage of heavy vehicles within the construction site;<br>• Ensure that vehicle traffic which may obstruct traffic flow is scheduled outside of peak travelling times;<br>• Ensure that heavy / large load traffic is appropriately routed and appropriate safety precautions are taken to prohibit road collisions and traffic incidences; | The prevention or the mitigation of the impedance of traffic<br>Avoidance of collisions associated with the construction operations<br>Informed IAPs | Implementation:<br>Contractor & Engineer<br><br>Inspection:<br>EM & ECO<br><br>Verification:<br>ECO | Implementation:<br>Planning and approval stages<br><br>Inspection:<br>Pre-construction and *ad hoc*<br><br>Verification:<br>*Ad hoc* and monthly as a minimum |

| PRE-CONSTRUCTION PHASE | | | | |
|---|---|---|---|---|
| **Impact management objectives of an EMPr** | **Impact management actions of an EMPr** | **Impact management outcomes of an EMPr** | **Responsibility** | **Frequency/Timing** |
| | • Ensure that vehicle operators are suitably licensed, have had appropriate environmental and safety induction, are aware of specific site procedures, and are well rested and cognisant when operating heavy or unsafe vehicles / machinery; and<br>• Ensure that public consultation has taken place, informing residents of alternative routes prior to the commencement of construction activities. | | | |
| Prevent the spread of waste | • Accumulation of construction and general waste;<br>• Demarcated areas where waste can be securely contained and stored on a temporary basis during the construction phase must be established. When adequate volumes (not more than 1 month) have accumulated all waste is to be removed from site and disposed of at a licensed facility;<br>• Litter must be removed from all construction areas prior to construction commencement;<br>• Should skips be used for the storage and transportation of waste, these need to be emptied once full and must be covered to prevent waste from being blown away;<br>• Waste is not to be buried or burned on site;<br>• All waste must be recycled where possible or disposed of at a registered landfill, proof of which must be provided and kept in the on-site environmental file; | The prevention or the mitigation of the spread of waste<br>Compliance to the Norms and Standards for the storage of waste<br>Prevention of soil and or water contamination<br>Avoidance of nuisance vectors | Implementation:<br>EM & Contractor<br><br>Inspection:<br>EM & ECO<br><br>Verification:<br>ECO | Implementation:<br>Planning and approval stages<br><br>Inspection:<br>Pre-construction and *ad hoc*<br><br>Verification:<br>*Ad hoc* and monthly as a minimum |

| PRE-CONSTRUCTION PHASE | | | | |
|---|---|---|---|---|
| **Impact management objectives of an EMPr** | **Impact management actions of an EMPr** | **Impact management outcomes of an EMPr** | **Responsibility** | **Frequency/Timing** |
| | • All hazardous materials including paints, turpentine and thinners must be stored appropriately to prevent these contaminants from entering the environment; and<br>• Spill-sorb or similar type product must be used to absorb hydrocarbon spills in the event that such spills should occur. | | | |
| Prevent unnecessary loss of heritage artefacts | • Possibility of finding something of heritage or cultural significance during earth moving activities;<br>• In the event of a cultural or heritage artefact being found all work must stop until the matter is resolved. Amafa aKwaZulu-Natali (Amafa) is to be contacted immediately and direction from the Amafa representative must be taken and adhered to;<br>Inclusion of heritage importance and mitigation in environmental awareness training. | The prevention or the mitigation of the loss of heritage artefacts | Implementation:<br>EM & Contractor<br><br>Inspection:<br>EM & ECO<br><br>Verification:<br>ECO | Implementation:<br>Planning and approval stages<br><br>Inspection:<br>Pre-construction and *ad hoc*<br><br>Verification:<br>*Ad hoc* and monthly as a minimum |

***TABLE 8-2: Construction Management Actions and Outcomes***

| CONSTRUCTION PHASE | | | | |
|---|---|---|---|---|
| **Impact management objectives of an EMPr** | **Impact management actions of an EMPr** | **Impact management outcomes of an EMPr** | **Responsibility** | **Frequency/Timing** |
| *A thing aimed at or sought, a goal* | *The process of doing something, typically to achieve an aim* | *The way a thing turns out; a consequence* | | |
| Prevent soil contamination | • Hazardous materials/dangerous goods must be stored in a clearly marked, lockable, designated storage area;<br>• MSDS's are to be kept on site for all hazardous materials used on site. MSDS's are to be easily accessible to staff;<br>• Hazardous materials/dangerous goods must be stored within a bunded area which has the capacity to store 110% of the volume of the materials stored, and in accordance with the relevant MSDS's;<br>• When decanting hazardous substances, drip trays must be used;<br>• Should a spillage occur, an absorbent e.g sawdust / Oilcap must be spread on areas where oil spills have occurred, the contaminated soil and sawdust must be lifted and placed within a high density plastic bag for storage / disposal;<br>• Oil-contaminated soils are to be removed to a contained storage area and disposed of at a licensed facility. Slips are to be retained in the environmental file as proof of safe disposal; and<br>• Chemical toilets must be placed at least 50m outside any watercourse. A registered chemical waste company is to be used to remove waste from the chemical toilets on site. Proof of servicing | Avoidance of soil loss<br>Re-use of viable soils in rehabilitation<br>Avoidance of disposal of hazardous waste | Implementation:<br>Contractor<br><br>Inspection:<br>EM & ECO<br><br>Verification:<br>ECO | Implementation:<br>Ongoing<br><br>Inspection:<br>*Ad hoc*<br><br>Verification:<br>Monthly |

| CONSTRUCTION PHASE | | | | |
|---|---|---|---|---|
| **Impact management objectives of an EMPr** | **Impact management actions of an EMPr** | **Impact management outcomes of an EMPr** | **Responsibility** | **Frequency/Timing** |
| | of chemical toilets must be kept by the contractor, in the on-site environmental file, for review purposes by the ECO if needed. | | | |
| Prevent soil loss | • Soil must be stockpiled in such a way as to minimize erosion;<br>• Topsoil must be stockpiled such that re-use in rehabilitation is feasible;<br>• The exposed soil surfaces must be protected from wind derived fugitive dust generation, if to be exposed for a period exceeding 2 months or in high wind conditions;<br>• Where exposed surfaces will be exposed to surface run-off, diversion of surface run-off must be implemented to ensure erosion is avoided; and<br>• The re-use of soil and stockpiles must be prioritised in the construction phase, where geotechnically appropriate. | Re-use of viable soil in rehabilitation<br>Low / No fugitive dust deposition | Implementation:<br>Contractor<br><br>Inspection:<br>EM<br><br>Verification:<br>ECO | Implementation:<br>Ongoing<br>Inspection:<br><br>*Ad hoc* and weekly as a minimum<br><br>Verification:<br>Monthly |
| Preservation of flora | • Increase in alien invasive species, therefore a possible loss in biodiversity;<br>• Potential off-site pollution as a result of accidental spillages of petrochemicals or bituminous substances;<br>• All construction areas must be demarcated prior to construction to ensure that the footprint of the impacts are limited (including areas where vehicles may traverse);<br>• All alien invasive species within the construction and development footprint must be removed and | A robust landscaped open space with appropriate indigenous vegetation to support flora and fauna. | Implementation:<br>Contractor & Specialist where required<br><br>Inspection:<br>EM<br><br>Verification:<br>ECO | Implementation:<br>Ongoing and during rehabilitation<br><br>Inspection:<br>*Ad hoc* and weekly as a minimum<br><br>Verification:<br>Monthly |

| CONSTRUCTION PHASE | | | | |
|---|---|---|---|---|
| **Impact management objectives of an EMPr** | **Impact management actions of an EMPr** | **Impact management outcomes of an EMPr** | **Responsibility** | **Frequency/Timing** |
| | follow up monitoring and removal programmes must be initiated once construction is complete; and<br>• Reseed cleared areas with an indigenous seed mix to prevent soil erosion and enable rehabilitation. | | | |
| Preservation of fauna | • Hunting and/or fishing activities on site is prohibited. This includes the setting of traps, or the killing of any animal caught in construction works; and<br>• No animal, reptile or bird of any sort found on site may be killed. This specifically includes snakes or other animals considered potentially dangerous discovered on site. If such an animal is discovered on site, an appropriately skilled person should be summoned to remove the animal from the site. Consideration should be given to selection and nomination of such a person prior to site establishment. If no-one is available, training should be provided to at least two site staff member. | A robust landscaped open space with appropriate indigenous vegetation to support flora and fauna. | Implementation:<br>Contractor<br><br>Inspection:<br>EM<br><br>Verification:<br>ECO | Implementation:<br>Ongoing<br><br>Inspection:<br>*Ad hoc* and weekly as a minimum<br><br>Verification:<br>Monthly |
| Prevent increased surface runoff | • Care must be taken to ensure that in removing vegetation adequate erosion control measures are implemented;<br>• A stormwater management plan, including sufficient erosion-control measures, has been compiled in consultation with a suitably qualified environmental practitioner / control officer during | A well covered dense rehabilitated open space to reduce run-off energy and reduce peak flows. Establishment of stormwater retention facility | Implementation:<br>Contractor<br><br>Inspection:<br>EM<br><br>Verification:<br>ECO | Implementation:<br>Ongoing<br><br>Inspection:<br>*Ad hoc* and weekly as a minimum<br><br>Verification:<br>Monthly |

| CONSTRUCTION PHASE | | | | |
|---|---|---|---|---|
| **Impact management objectives of an EMPr** | **Impact management actions of an EMPr** | **Impact management outcomes of an EMPr** | **Responsibility** | **Frequency/Timing** |
| | the detailed design phase prior to the commencement of construction, and must be implemented; and<br>• The propagation of low-growing dense vegetation suitable for the habitat such as grasses, sedges or reeds is the best natural method to reduce erosion potential in sensitive areas. | | | |
| Preserve air quality | • Heavy vehicles and machinery must be serviced regularly to minimise exhaust fume pollution;<br>• Soil stockpiles will be located in areas to limit the erosive effects of the wind, which will limit dust;<br>• Removal of vegetation must be avoided until such time as soil stripping is required, which will limit dust.<br>• Limit vehicle speeds on unpaved roads to 20 km/h to limit the amount of dust generated;<br>• Haulage distances must be at a minimum;<br>• Environmentally friendly soil stabilisers may be used to control dust on gravel roads and construction areas;<br>• All equipment must be kept in good working order;<br>• Equipment must be operated within its specifications and capacity and must not be overloaded;<br>• All machinery/plant must be serviced and lubricated regularly to ensure a good working order; and | No fugitive dust exceeding SANS regulations or creating nuisance conditions | Implementation:<br>Contractor<br><br>Inspection:<br>EM & ECO<br><br>Verification:<br>ECO | Implementation:<br>Monthly or at the prescribed vehicle/plant manufacturers specifications<br>Daily for management measures<br><br>Inspection:<br>*Ad hoc* and weekly as a minimum<br><br>Verification:<br>Monthly |

| CONSTRUCTION PHASE | | | | |
|---|---|---|---|---|
| **Impact management objectives of an EMPr** | **Impact management actions of an EMPr** | **Impact management outcomes of an EMPr** | **Responsibility** | **Frequency/Timing** |
| | • The entire Contractors' vehicles shall be fitted with effective exhaust silencers and shall comply with Road Traffic Act (Act 29 of 1989) when any such vehicle is operated on a public road. | | | |
| Prevent noise pollution | • Potential increase in noise from the operation of machinery and equipment, as well as the construction vehicle traffic.<br>• Potential disturbance to the resident's adjacent to the site;<br>• Ensure that the potential noise source will conform to the South African Bureau of Standards recommended code of practice, SANS Code 0103:1983, so that it will not produce excessive or undesirable noise when it is released; and<br>• All the Contractors' equipment shall be fitted with effective exhaust silencers and shall comply with the South African Bureau of Standards recommended code of practice and the South African National Standard (SANS) Code 0103:1983, for construction plant noise generation. | No ambient noise impacts relating to plant operations<br>Compliance to municipal by-laws<br>No nuisance conditions created | Implementation: Contractor<br><br>Inspection: EM & ECO<br><br>Verification: ECO | Implementation: Monthly or at the prescribed vehicle/plant manufacturers specifications<br>Daily for management measures<br><br>Inspection: *Ad hoc* and weekly as a minimum<br><br>Verification: Monthly |
| Prevent visual unsightliness | • The presence of the construction machinery on site will have a temporary visual impact, to be mitigated on receipt of complaints from community. | The prevention or the mitigation of unsightliness | Implementation: EM & Contractor<br><br>Inspection: EM & ECO<br><br>Verification: ECO | Implementation: *Ad hoc* and daily<br><br>Inspection: *Ad hoc* and daily<br><br>Verification: Monthly |

| CONSTRUCTION PHASE | | | | |
|---|---|---|---|---|
| **Impact management objectives of an EMPr** | **Impact management actions of an EMPr** | **Impact management outcomes of an EMPr** | **Responsibility** | **Frequency/Timing** |
| Prevent unnecessary impedance of traffic | • Potential increase of construction vehicles entering and exiting the site, possible lane closures, traffic delays and congestion during the construction phase.<br>• Provide sufficient area for the storage of heavy vehicles within the construction site;<br>• Ensure that vehicle traffic which may obstruct traffic flow is scheduled outside of peak travelling times;<br>• Ensure that heavy / large load traffic is appropriately routed and appropriate safety precautions are taken to prohibit road collisions and traffic incidences; and<br>• Ensure that vehicle operators are suitably licensed, have had appropriate environmental and safety induction, are aware of specific site procedures, and are well rested and cognisant when operating heavy or unsafe vehicles / machinery. | The prevention or the mitigation of the impedance of traffic | Implementation:<br>Contractor<br><br>Inspection:<br>EM & ECO<br><br>Verification:<br>ECO | Implementation:<br>Daily and *ad hoc*<br><br>Inspection:<br>*Ad hoc* and weekly as a minimum<br><br>Verification:<br>Monthly |
| Prevent the spread of waste | • Accumulation of construction and general waste;<br>• Demarcated areas must be established where waste can be securely contained and stored on a temporary basis during the construction phase. When adequate volumes (not more than 1 month) have accumulated all waste is to be removed from site and disposed of at a licensed facility. Proof of safe disposal slips must be maintained in the in-site environmental file; | The prevention or the mitigation of the spread of waste<br>Compliance to the Norms and Standards for the storage of waste<br>No presence of nuisance vectors | Implementation:<br>Contractor<br><br>Inspection:<br>EM & ECO<br><br>Verification:<br>ECO | Implementation:<br>Daily and *ad hoc*<br><br>Inspection:<br>*Ad hoc* and weekly as a minimum<br><br>Verification:<br>Monthly |

| CONSTRUCTION PHASE | | | | |
|---|---|---|---|---|
| **Impact management objectives of an EMPr** | **Impact management actions of an EMPr** | **Impact management outcomes of an EMPr** | **Responsibility** | **Frequency/Timing** |
| | • Litter must be removed from all construction areas prior to construction commencing;<br>• Should skips be used for the storage and transportation of waste, these need to be emptied once full and covered to prevent waste from being blown away;<br>• Waste is not to be buried or burned on site;<br>• All waste must be recycled where possible or disposed of at a registered landfill, proof of which must be provided;<br>• All hazardous materials including paints, turpentine and thinners must be stored appropriately to prevent these contaminants from entering the environment; and<br>• Spill-sorb or similar type product must be used to absorb hydrocarbon spills in the event that such spills should occur. | | | |
| Prevent unnecessary loss of heritage artefacts | • Possibility of finding something of heritage or cultural significance during earth moving activities;<br>• In the event of a cultural or heritage artefact being found all work must stop until the matter is resolved. Amafa is to be contacted immediately and direction from the Amafa representative must be taken and adhered to; and<br>• In the instance that graves are encountered on site, no graves may be damaged, altered or destroyed. | The prevention or the mitigation of the loss of heritage artefacts | Implementation:<br>Contractor<br><br>Inspection:<br>EM & ECO<br><br>Verification:<br>ECO | Implementation:<br>Daily and *ad hoc*<br><br>Inspection:<br>*Ad hoc* and weekly as a minimum<br><br>Verification:<br>Monthly |

| CONSTRUCTION PHASE | | | | |
|---|---|---|---|---|
| **Impact management objectives of an EMPr** | **Impact management actions of an EMPr** | **Impact management outcomes of an EMPr** | **Responsibility** | **Frequency/Timing** |
| Employee training and skills development | • Environmentally focused toolbox talks are to be undertaken at least once a week. Content is to include matters included in this EMPr e.g. alien vegetation control, littering, erosion control etc.; and<br>• A register of attendance at each toolbox talk is to be maintained in the environmental file. | Educate staff regarding environmental protection | Implementation:<br>Contractor<br><br>Inspection:<br>EM & ECO<br><br>Verification:<br>ECO | Implementation:<br>Daily and *ad hoc*<br><br>Inspection:<br>*Ad hoc* and weekly as a minimum<br><br>Verification:<br>Monthly |

***TABLE 8-3: Post-Construction and Rehabilitation Management Actions and Outcomes***

| POST-CONSTRUCTION AND REHABILITATION PHASE | | | | |
|---|---|---|---|---|
| **Impact management objectives of an EMPr** | **Impact management actions of an EMPr** | **Impact management outcomes of an EMPr** | **Responsibility** | **Frequency/Timing** |
| *A thing aimed at or sought, a goal* | *The process of doing something, typically to achieve an aim* | *The way a thing turns out; a consequence* | | |
| Rehabilitation | • On completion of the project, the appointed contractor must ensure that all structures, equipment, materials, waste, rubble, notice boards and temporary fences used during construction are removed;<br>• All construction waste / debris must be removed from within the construction footprint and disposed off-site at an approved landfill site;<br>• Progressive rehabilitation must be undertaken throughout the construction phase of the project where areas have been impacted upon. Rehabilitation should commence as soon as construction is completed in a specific area and not at the end of the entire project;<br>• Post construction, any areas disturbed outside of the construction footprint due to construction activities must be rehabilitated by appropriate landscaping, topsoil dressing, alien plant rehabilitation and vegetation establishment;<br>• Post construction, all disturbed and open surfaces must be planted with indigenous grasses; and<br>• Where necessary, topsoil must be imported to the site in question, prior to regrassing of the site. It is preferred that the topsoil used is excess topsoil from another portion of the site. | Ensure environmental degradation associated with construction is remediated | Implementation:<br>Contractor<br><br>Inspection:<br>EM<br><br>Verification:<br>ECO | Implementation:<br>Ongoing<br><br>Inspection:<br>Ad hoc<br><br>Verification:<br>In conjunction with monthly construction audits during the construction phase, and in accordance with EA during operational phase. |

# 9. STAFF CONDUCT CONTROL AND INFORMATION SHEET

| ALL STAFF MUST OBEY THE FOLLOWING RULES: | |
|---|---|
| 1 | **DO NOT** tamper with or destroy nesting sites, lairs or any other form of animal shelter. |
| 2 | **DO NOT** leave the construction sites untidy and strewn with rubbish that will attract animal pests. |
| 3 | **DO NOT** trespass on private properties not linked to the project or adjacent to the project. |
| 4 | **DO NOT** carry a weapon on the construction sites or in the vehicles transporting workers to and from the construction sites. |
| 5 | **DO NOT** set fires unnecessarily. |
| 6 | **DO NOT** cause any unnecessary disturbing noise at the construction site or at any designated worker collection/drop off points. |
| 7 | **DO NOT** drive a vehicle under the influence of alcohol. |
| 8 | **DO NOT** exceed the national speed limits on public roads. |
| 9 | **DO NOT** drive a vehicle that is generating excessive noise (noisy vehicles must be reported and repaired as soon as possible). |
| 10 | **DO NOT** litter along the roadsides, including both public and private roads. |
| 11 | **DO NOT** remove or destroy vegetation at the construction camp / construction site without the prior consent of the Contractor and ECO. |
| 12 | **DO NOT** tamper with, destroy or remove vegetation from any areas that have been fenced off or marked. |
| 13 | **DO NOT** pollute watercourses, whether flowing or not. |
| 14 | **DO NOT** drive through the watercourses except at designated points. |
| 15 | **DO NOT** operate critical items of mechanical equipment without having been trained and certified. |
| 16 | **ALL** employees must undergo the necessary safety training and wear the necessary protective clothing at all times. |
| 17 | **NO** ad-hoc activities are to be undertaken e.g. fires for cooking, the use of surrounding bush as a toilet facility is strictly forbidden |
| 18 | **NO** worker may be forced to do work that is potentially dangerous or for what he / she is not trained to do. |

# 10. ALIEN PLANT CONTROL

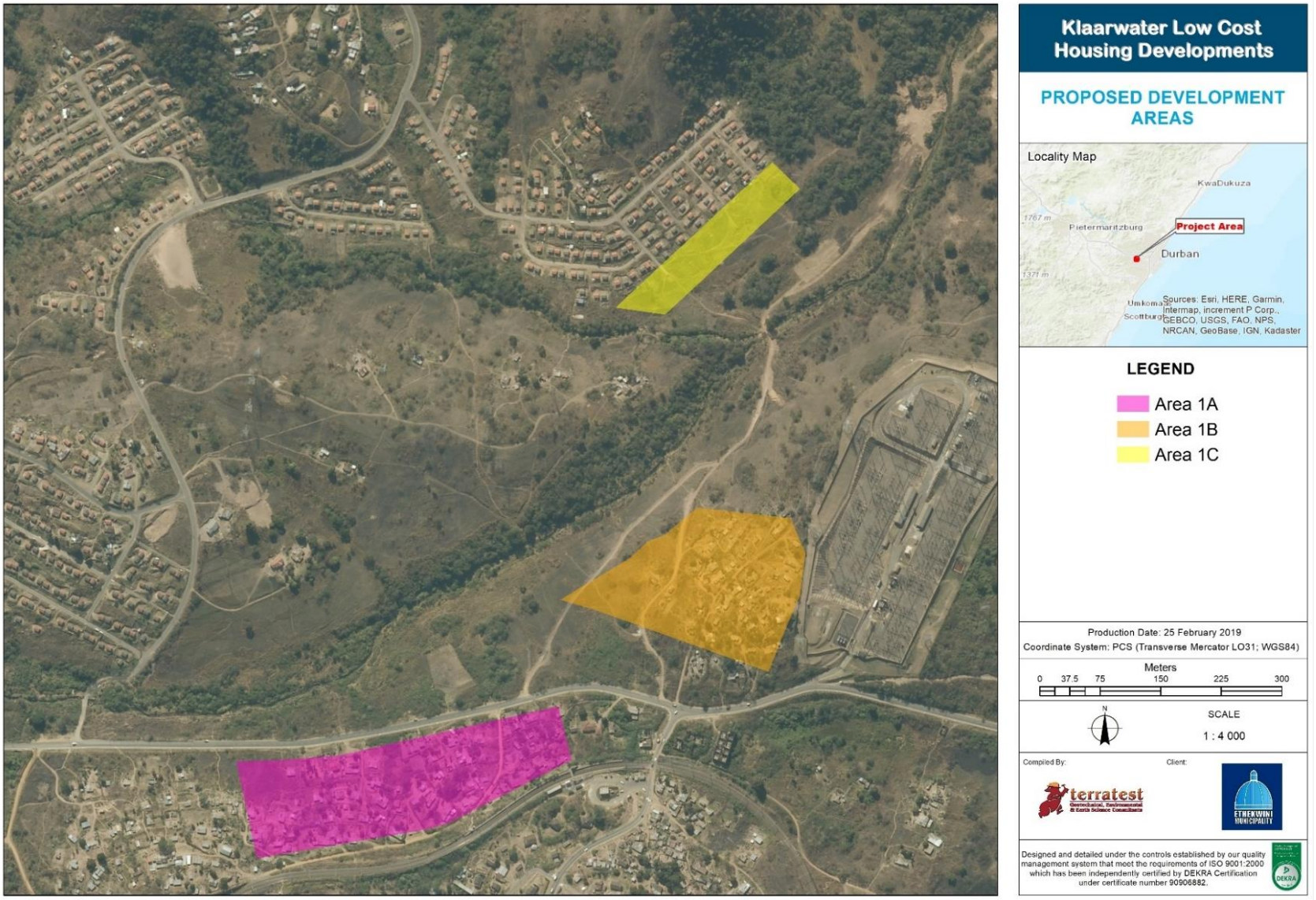
Best practice measures that should be undertaken during clearing include the following:

(i) Cut plants as low to ground as possible.
(ii) All alien plants must be removed carefully and exposed soil should be covered with cut vegetation or leaf litter that is free of weed seeds to ensure that regrowth will not occur.
(iii) Press any loosened soil down carefully and firmly and mulch with plant material where possible.
(iv) All alien seeds, fruit bulbs, tubers and stems must be collected and placed in a sealable container/plastic bag for disposal at a landfill site.
(v) The roots system of mature trees including alien invasive play an important role in stabilising soil and therefore the up-rooting of large mature specimen of trees is not advocated. It is better to fell the trees and paint the stump with the relevant herbicides.

**Control methods**

| METHOD | DESCRIPTION |
|---|---|
| **MECHANICAL METHOD** | |
| Hand pulling/ hoeing | • Hand pulling is most effective with small (30cm), immature or shallow rooted plants.<br>• Shake the excess sandy material from the plant, this makes the plant easier to stockpile and lighter to transport.<br>• However, make sure there is no seed on the plant first to eliminate the spread of seed while shaking. |
| Chopping/ cutting/ slashing | • This method is most effective for plants in the immature stage, or for plants that have relatively woody stems/ trunks.<br>• This is an effective method for non-re-sprouters or in the case of re-sprouts (coppicing) it must be done in conjunction with chemical treatment of the cut stumps.<br><br>**Note**<br>• Cut/slash the stem of the plant as near as possible to ground level.<br>• Paint re-sprouting plants (i.e. Black Wattle, Lantana and Port Jackson willow) with an appropriate herbicide immediately after they have been cut.<br>• Stockpile removed material into piles as prescribed. |
| Felling | • De-branch trees and where possible remove all material.<br>• Where possible large trees that are to be felled such that they fall uphill.<br>• Cut the tree down as low as possible to the ground.<br>• Apply herbicide immediately (no later than 30mins) to the cambium layer.<br>• Ensure all the cuts in the cambium layer are treated. |
| Ring barking | • Remove bark in a 30-40cm centimetre band and leave the tree to die<br>• Can be used with or without chemicals but is more successful when herbicide is used |

# APPENDIX 1 – LAYOUT PLAN



# APPENDIX 2 – EMPR ACKNOWLEDGEMENT FORM

## KLAARWATER LOW INCOME HOUSING DEVELOPMENT

Record of signatures providing acknowledgment of being aware of, and committed to complying with the contents of this Environmental Management Programme (EMPr), which relates to the environmental management, mitigation and rehabilitation measures for the project outlined above, and the environmental conditions contained in the civil and other construction contract documents.

**AUTHORISATION HOLDER:**

Signed: …….. Date: …….....

**CONTRACTOR:**

Signed: …….. Date: …….....

**SUB-CONTRACTOR/S:**

Signed: …….. Date: …….....

**ECO:**

Signed: …….. Date: …….....