

**DRAFT**  
**CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN**  
**FOR THE**  
**FAIRWAY OFFICE AND INDUSTRIAL PARK**  
**DEVELOPMENT SEWAGE TREATMENT PLANT**  
**ON**  
**PORTION 146 (OF 4)**  
**OF THE**  
**FARM UPPER END OF LANGEFONTEIN No, 980**  
**IN D819**  
**BRACKENHILL INDUSTRIAL AREA**

**PREPARED BY**  
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# **1. INTRODUCTION**

## **1.1. THE PURPOSE OF THIS CONSTRUCTION EMP**

The purpose of the Construction Environmental Management Plan (CEMP) is to prevent any negative environmental impacts or to ensure those that do happen are kept to the minimum during the construction phase of this development by providing this practical and achievable plan of management. The mitigation measures specified within this plan will assist in limiting these negative impacts during the construction process. The need for compliance and the need for monitoring compliance by inspection are explained. The various role players and their responsibilities and reporting procedures are also contained within this CEMP.

## **1.2. THE ORIGIN AND CONTEXT OF THIS EMP**

The developer is proposing to construct a complex of Office buildings and small factories in an area already designated as industrial area with exiting industries as neighbours. This EMP requires the developer to compel each contractor/s to comply with this Environmental Management Plan compiled to manage the construction of this development. This CEMP has been compiled by Indiflora cc Environmental Services. A Construction EMP is a “living document” and is subject to changes to cope with new circumstances, requirements of the Developer, Home Owners Association or other authorities as they arise.

## **1.3. ROLE PLAYERS AND RESPONSIBILITIES**

THE DEVELOPER:

**Mr Jim Mc Seveny**  
**Meadwood Trading 8 (Pty) Ltd**  
**29 Ridge Road**  
**Hillcrest**

RESPONSIBILITIES: To ensure the development comply with the requirements of the Environmental Management Act.

**ENVIRONMENTAL OFFICER:**

Johan Bodenstein of Indiflora cc is the Environmental Consultant.

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**RESPONSIBILITY:** It is his responsibility to oversee all environmental aspects including compliance, rehabilitation and landscaping.

#### **1.4. THE STRUCTURE AND CONTENT OF THIS EMP**

The following sections of this EMP deal with a particular environmental management component associated with the construction project, as follows:

- A. Camp site setup Phase
- B. Construction Phase
- C. Post-construction
- D. Site specific aspects

#### **1.5. SIGNIFICANT OR SENSITIVE FEATURES OF THE SITE**

Significant or sensitive features are:

1. The grasslands at the valley bottom and up the side slopes.
2. The erodibility of the soils.
3. The management of storm water run off to prevent erosion.

## 2. SECTION A: SITE ESTABLISHMENT AND PRELIMINARY ACTIVITIES

### 2.1. Legislation and Permits

The Site owner, Developer, Service Providers, Contractors and Principal Agent should comply with the relevant local and national legislation including:

1. Environment Conservation Act No 73 of 1989.
2. National Environment Management Act No 107 of 1989
3. National Water Act No 36 of 1998
4. Water Services Act No 108 of 1997
5. Forestry Act No 84 of 1998
6. Occupational Health and Safety Act No 85 of 1993
7. National Building Regulations and Building Standards Act No 103 of 1977
8. South African Heritage Resources Act No 25 of 1999
9. Relevant regulations as promulgated under the Standards Act No 30 of 1982
10. Local regulations and by-laws.

### 2.2. Bush clearing

#### 2.2.1. Alien plant removal

- a) All indigenous trees must be tagged and numbered and positioned on a layout plan.
- b) The alien plants are to be cut down and all the cut material taken off site to a registered landfill site.

#### 2.2.2. **Grassland rehabilitation**

- a) Prior to commencing with the proposed development , the grassland must be fenced **off**.
- b) The area in the grassland exposed during the alien plant control operation must be **revegetated with grassland plants from the area to be developed.**

### 2.3. Access to site

#### 2.3.1. Haulage Roads

- a) Planned **construction access is to be approved** by the Principal Agent and ECO ahead of construction activities.

- b) Any access road must **follow natural contours** to reduce storm water erosion and erosion control measures implemented eg swales and berms.
- c) The road must have as **little cut and fill** as possible.
- d) **No turning maneuvers** on neighbouring land.
- e) Contractors shall **construct formal drainage** on the temporary haulage road in the form of side drains to prevent erosion and point source discharge of run off.
- f) **Scour check walls** must be constructed in the side drains as follows : Gradient of Road/ Scour check spacing
  - less than 4% : Not required.
  - > 5% : 20m
  - > 8% : 10m
  - > 10% : 5m
- g) **Scour checks** can be constructed from rocks available or Biddim soil curtains.
- h) The haulage road must **allow for the natural flow of water** where required.
- i) **Diagonal berms** are to be constructed across the haulage road to divert storm water onto the platforms to prevent over surface flow leading to scour.

## **2.4. Setting up a Construction Camp**

### **2.4.1. Layout**

- a) **Choice of the site** for the Contractor's camp requires Principal Agent's permission, and must take into account location of local neighbours. A site plan must be submitted to the Principal Agent for approval.
- b) The construction camp will be comprised of:
  - site office
  - ablution facilities
  - dry material storage
- c) **Avoid cut and fill** where possible during the setting up of the construction camp.
- d) **Adequate parking** must be provided for site staff and visitors.
- e) The Contractor must **attend to drainage of the camp site** to avoid standing water and / or sheet erosion.
- f) **Fence off the construction camp** with Bonnox wire or weldmesh with lockable gates to make the camp secure when there is no staff present.
- g) The Contractor is to **provide security service** to protect the camp and its contents.

#### **2.4.2. Ablutions**

- a) Where waterborne sewerage is not available, **temporary chemical toilets** must be provided by a company that has been approved by the Principal Agent. Such toilets must be available for all site staff, both at the campsite and the work-front as agreed by the Principle Agent. Toilets should be no closer than 50m from any water bodies.
- b) The construction of **'long drop' toilets are forbidden.**
- c) **Do not use open areas or the surrounding as toilet facilities.**

#### **2. 4.3. Provision for Camp Waste Disposal**

- a) **Provide refuse bins and skips** at convenient intervals for disposal of waste within the construction camp. The skip rental company to be contracted to frequently (weekly or as the skips are full, whichever occurs first) service the skips
- b) **Provide separate waste receptacles** for different types of waste and encourage recycling.

### **2.5. Establishing Storage Areas**

#### **2.5.1. General Substances and Materials**

- a) **Choice of location for storage areas** must take into account prevailing winds, distance to water bodies and general on – site topography. No storage permitted within the 1:100 year floodline.
- b) **Storage areas must be designated, demarcated and fenced.**
- c) **Secure storage areas** so as to minimize the risk of crime. They should be safe from access by children and animals.
- d) **Fire prevention facilities** must be present at all storage facilities.

#### **2.5.2. Hazardous substances and materials**

- a) Definition of hazardous substances / materials are those that are potentially: poisonous, flammable, carcinogenic or toxic.
- b) Hazardous substances / materials to be used on this site include:
  - diesel, petroleum, oil, bituminous products
  - cement
  - solvent based paints

- lubricants
- c) **Material Safety Data Sheets ( MSDS's )** shall be readily available on site for all chemicals and hazardous substances to be used on site. Where possible and available, MSDS's should additionally include information on ecological impacts and measures to minimize negative environmental impacts during accidental releases or escapes.
- d) **Take into account** the proximity of houses, schools etc is when deciding on storage areas for hazardous substances.
- e) **Notify neighbours** adjacent to the construction site of the existence of the hazardous storage area.
- f) **Make staff aware** dealing with these materials / substances that it has potential impacts and follow the appropriate safety measures.
- g) **Submit a method statement and plans** for the storage of hazardous materials and emergency procedures to the ECO.

## **2.6. Materials Management – Sourcing**

### **2.6.1. Source of Materials**

- a) **Prepare a source statement** indicating the sources of all materials (including topsoil, sands, natural gravels, crushed stone, asphalt, clay liners, etc.) and submit these to the Engineer prior to the commencement of any work.
- b) **Obtain signed documents** from suppliers of natural materials confirming that they have been obtained in a sustainable manner in compliance with the relevant legislation.
- c) **Provide proof of authorization** to utilize borrowed (mined), from the landowner / mineral rights owner and the Department of Minerals and Energy.

## **2.7 Education of site staff on general and environmental conduct**

### **2.7.1. Environmental Education and Awareness**

**Ensure that all site personnel have a basic level of environmental awareness training.** The Contractor must submit a proposal for this training to the ECO for approval. Topics covered should include :

- What is meant by environment
- Why the environment needs to be protected and conserved
- How construction activities can impact on the environment
- What can be done to mitigate against such impacts

- Awareness of emergency and spill response provisions.
- Social responsibility during construction e.g. being considerate to local residents

It is the contractor's responsibility to provide the site foreman with no less than one hour's environmental training and ensure that the foreman has sufficient understanding to pass this information onto the construction staff.

- a) **Use translators** where necessary.
- b) **The Principle Agent/ Environmental Control Officer to explain** more difficult / technical issues and to answer questions.
- c) **Use pictures and real – life examples** is encouraged as these tend to be more easily remembered.
- d) **Make use** of environmental awareness posters.
- e) **Make construction workers aware** that they are not to make excessive noise (e.g. shouting / hooting) when the site is near to commercial / residential areas.
- f) **Explain the 'clean site' policy** to construction workers.
- g) **Environmentally induct** all contractors, sub-contractors and their staff.

## 2.8.

### Dust / Air Pollution

#### 2.8.1. Controlling dust

- a. **Vehicles travelling** must adhere to speed limits when travelling along the access road to avoid creating excessive dust.
- b. **Mitigate for dust** generated during site clearance and the construction phase through dust control measures which should include damping with water, maintenance of vegetation, on the boundaries of the site or spraying Reverseal SS100 obtainable from Revertex in Mobeni.
- c. **Cover stock piles** of topsoil or plant it with abortive crops such as Tef or Rye grass to reduce dust.
- d. **Make alternative arrangements** (other than fires) for cooking and / or heating requirements. LP gas cookers may be used provided that all safety regulations are followed.

## 2.9. Soil Erosion

- a) **Minimize the time that stripped areas are left open** to exposure wherever possible. Care should be taken to ensure that lead times are not excessive. During the EIA phase the prepared platforms must be seeded with a

mixture of Tef, *Eragrotis tef* and Rye, *Lolium multiflorum* mixture to ensure the forfeit crop is sustainable during all seasons whilst the EIA authorization is awaited.

- b) **Undertake wind screening and storm water control** to prevent soil loss from the site by securing it with a row of sandbags, or strips of instant lawn, or Geojute rolls or mats or the placement of brushwood across slope.
- c) **Conserve topsoil** during the set up phase and the construction phase of the project, i.e. topsoil is to be conserved while providing access to the site and setting up of camp.
- d) **Re-vegetate areas cleared of alien vegetation** by seeding the area with a sacrificial crop of grass commercially available grass seed: (*Eragrostis tef* @ 5 kg/ha) is to be spread by hand at a rate of 3 g/m<sup>2</sup>. Once the seed is spread it is to be lightly raked into the soil and irrigated.
- e) **Create sand bag berms** along the outer boundary of the platform to prevent erosion onto the neighbouring sites

## 2.10.

### Storm water

- a) **Prevent storm water damage** from the increase in storm water run off resulting from construction activities by estimating and assessing the drainage system accordingly. A drainage plan must be submitted to the Engineer for approval.
- b) **Construct temporary cut off drains and berms** required to slow the storm water down.
- c) **Lay sandbags, Geojute, or strips of instant lawn or Biddim soil curtains across the slope** to slow the flow of the water down, trap the silt but allow the water to move through.

## 2.11 Water Quality

- a) **Bund storage areas** that contain hazardous substances with and approved impermeable liner.
- b) **Clean up spills in banded areas**, remove and dispose of safely from the banded area as soon after detection as possible to minimize pollution risk and reduced bunding capacity.
- c) **No area is to be set aside for vehicle washing and maintenance.** Where vehicles breakdown and are in need of field repair adequate provision must be made to contain hazardous material by laying down plastic sheeting to protect the soil. Materials caught in this banded area must be disposed of to a suitable waste site or as directed by the engineer.
- d) **Make provision for all polluted run off** during set up to be treated to the Engineer's approval before being discharged into the storm water system. (This will be required for the duration of the project).

## **2.12 Conservation of Natural Environment**

### **2.12.1. Fauna and Flora**

- a) **Take care to avoid the introduction of alien plant species** to the site and surrounding areas. (Particular attention must be paid to imported material).
- b) **Minimize disturbance of birds, animals and reptiles and their habitats** wherever possible.

### **2.12.2. Sensitive Habitats**

Temporarily fence off the grassland below the below the proposed development with Bonnox wire to prevent incidental access to the sensitive area.

## **2.13. Set up of Waste Management Procedures**

**Demarcate any areas** identified by the PA or the Environmental Control Officer as being ecologically sensitive adjacent to any construction work to prevent damage by plant and labour.

- a) The excavation and use of **rubbish pits on site is forbidden.**
- b) **Burning of waste is forbidden.**
- c) **Allocate a fenced area for waste sorting and disposal.** It should be covered to prevent the wind from blowing the waste around.
- d) **Provide individual skips for different types of waste** (e.g. "household" type refuse, building rubble, etc.).

## **2.14.**

### **Social Impacts – Visual and Noise**

#### **2.14.1. Public Participation**

- a) **Make contact with those people** that are Interested or Affected by the development (I & AP's) during the set up phase of the project.
- b) The I & AP's can be identified as those who either :
  - o Live close by the project
  - o Work close by the site
  - o Will have their services / infrastructure affected by the project
  - o Have a general interest in the project

- The Councillor for the ward in which the construction is taking place.

#### **2.14.2. Noise Impacts**

- a) **Fit construction vehicles with standard silencers** prior to the beginning of construction.
- b) **Use equipment** that is fitted with noise reduction facilities (e.g. side flaps, silencers etc.) as per operating instructions and maintained properly during site operations.

#### **2.14.3. Visual Impacts**

- a) **Locate storage facilities**, elevated tanks and other temporary structures that they have as little visual impact on local residents as possible.
- b) **Screen with shade cloth** or other suitable material areas where the visual environment is particularly important (e.g. along commercial / tourism routes), prior to the beginnings of construction.
- c) **Screen highly reflective materials** on site.

#### **2.15. Cultural Environment**

**Inform all staff** prior to commencement of construction, what possible archaeological or historical objects of value may look like, and to notify the PA should such an item be uncovered

#### **2.16. Security and Safety**

##### **2.16.1. Fencing**

- a) **Secure each sub-development** and the contractors' camp site in order to reduce the opportunity for criminal activity in the locality of the construction site.
- b) **Demarcate potentially hazardous areas** such as trenches and clearly mark them.

##### **2.16.2. Lighting**

**Set lighting out on site** to provide maximum security and to enable easier policing of the site, without creating a visual nuisance to local residents or businesses.

### **2.16.3. Risks Associated with Material on Site**

- a) **Stabilise and secure material stockpiles or stacks**, such as pipes, to avoid collapse and possible injury to workers / local residents
- b) **Store flammable materials** as far as possible away from adjacent residents / businesses.
- c) **Fire fighting equipment** should be present on site at all times as per OHSA
- d) **Obstruction to driver's line of sight** due to stockpiles and stacked materials must be avoided, especially at intersections and sharp corners
- e) **Do not store materials** in unstable or high risk areas, such as on steep slopes.
- f) **Notify all I & AP's** should be in advance of any known potential risks associated with the construction site and activities on it.

### **2.17 Fuel storage**

- a) **Locate the tanks as far as possible away** from all environmentally sensitive areas on or near the construction site, such as streams and wetland areas, steep slopes, unstable ground, or residential or other areas where the public occur.
- b) The tanks must have the appropriate **hazard and no smoking signs** erected on or near them.
- c) The tanks must be placed **on an impermeable surface** such as a concrete slab, and must be **bunded** by an impermeable wall, such as an internally plastered brick wall, of sufficient height to contain any spillages or tank failures.
- d) There must be a **drip tray** used below the filler cap of any machinery, containers or vehicles that is filled from the tanks. Any fuel on the drip tray must be placed in an appropriate container closed for disposal to a waste disposal site.
- e) The **dispenser taps** on the tanks should be locked when not in use.
- f) There must be **adequate fire extinguishers** located close by in an accessible position to the tanks.
- g) There must be a **container** (such as a steel drum) to collect any soil contaminated by spillages. This container should be labeled "contaminated soil", and this container must be emptied as required at a licensed waste disposal site.
- h) There must be some **absorbent material** (such as Drizit or Peatsorb) kept close to the tanks which should be used to mop up any spillage of fuel. This used absorbent material may be placed in the container for contaminated soil, and must also be disposed of to a licensed waste disposal site.
- i) **Do not be park vehicles** closer than 5 m from fuel tanks.

### 3. MANAGEMENT OF CONSTRUCTION ACTIVITIES AND WORKFORCE

#### 3.1 Storm water

*Construction activities frequently result in diversions of natural water flow resulting in concentration of flow and an increase in the erosive potential of the water. Measures in this section are aimed at reducing the erosive potential of stormwater*

##### 3.1.1. General Principles

- a ) Water will flow down-slope over the site during rain events.
- b ) **Earth, stone and rubble is to be properly disposed of** so as to not obstruct natural water pathways over the site, i.e. these materials must not be placed in storm water channels, drainage lines or rivers.
- c ) There should be a **periodic checking of the site's drainage system** to ensure that the water flow is unobstructed and directed towards the estate drainage system
- d ) Storm water outfalls should be designed to reduce flow velocity and **avoid downstream stream bank erosion and soil erosion.**

##### 3.1.2. Unchanneled Flow

- a ) During construction, **surface flow must be controlled** to avoid soil erosion. Where large areas of soil are left exposed, **erosion berms should be constructed** to break the flow of run-off water. Sand bag berms are to be used to direct and control surface flow. The spacing between rows will be dependant on slope. Geojute must be installed on exposed banks to slow surface wash and capture eroded soil.
- b ) Where surface run – off is concentrated ( e.g. along exposed roadways/ tracks ), flow should be slowed by contouring with cut-of trenches and berms.
- c) The newly constructed access must be lined with a double row of sandbags for the entire length to guide storm water down to the catchpit in St Geran Grove.

#### 3.2. Soil Erosion

##### 3.2.1. Topsoil Stripping and Stockpiling

During site clearing **topsoil must be stockpiled** ( nominally 150mm of soil ) in a designated area.

### 3.2.2. Exposed surfaces

The full length of the works shall not be stripped of vegetation prior to commencing other activities. The time that stripped areas are exposed shall be minimized wherever possible.

- a ) Topsoiling and revegetation shall commence immediately after the completion of an activity.
- b ) **Screening of the site** should be undertaken to prevent soil loss by storm water and wind.
- c ) **No tipping of spoil and excavated materials on site** shall be permitted – all spoilt soil material and builders rubble shall be disposed of as directed by the CEMP or used for backfill on request to the ECO.
- d ) Battering of all banks shall be such that cut and fill embankments are no steeper than previous natural slopes, unless otherwise permitted by the engineer. Cut and fill embankments steeper than previous ground levels shall be revegetated immediately on completion of trimming or shall be protected against erosion using bio-engineered stabilization measures, including the use of deep – rooted vegetation such as *Asystasia* to stabilize steeper embankments.
- e ) **Protect all embankments**, with a cut off drain to prevent water from cascading down the face of the embankment and causing erosion.

### 2.3. Dust/Air Pollution

- a ) Access and other **cleared surfaces must be dampened** whenever possible and especially in dry and windy conditions to avoid excessive dust.
- b **Screening required where dust is unavoidable** in residential or commercial areas, utilizing wooden supports and shade cloth, to be installed at the discretion of the Environmental Officer.
- c ) **Vehicles and machinery to be maintained** in good working order and to meet manufacturer's specifications for safety, fuel consumption, prevention of hydraulic systems, etc.
- d ) **Repair equipment** when excessive emissions be observed.
- e ) **No fires** are allowed on site.
- f ) **Stockpiles cause dust** and so must be managed in accordance with the guidelines in Materials and Management in Section 3.5.

## 2.4. Waste management

### 2.4.1. On – site Waste Management

- a ) **Place refuse in designated skips / bins** daily at the end of each working day which must be regularly emptied when full. These should remain within demarcated areas and should be designed to prevent refuse from being blown out by wind.
- b ) **Place waste receptacles at the work front** at close intervals, in addition to the waste facilities within the construction camp,
- c ) Littering on the site is forbidden. **Clear the site of all litter** at the end of each working day.
- d ) **Encourage recycling** by providing separate receptacles for different types of waste and making sure that staff are aware of their uses.

### 2.4.2. Waste disposal

#### **Non – hazardous waste**

- a ) **Remove waste from the site** and transport it to an approved landfill site.
- b ) **Provide waybills** proving disposal for inspection at each site.
- c ) **Dispose of construction rubble at pre – agreed, demarcated spoil dumps** that have been approved by the Engineer, or at the disposal sites as listed in Section D.
- d) **Chemical toilet waste to be disposed of regularly** and in a responsible manner by a registered waste contractor. Care must be taken to **avoid contamination of soils and water**, pollution and nuisance to adjoining areas by using an impermeable layer eg plastic sheeting. Communicate this requirement to the service provider.

#### Hazardous Wastes

- a ) Approved **waste contractor must dispose of Hazardous waste. Provide waybills for inspection.**
- b ) **Create a sump (earth or other ) for concrete waste. De–sludge it regularly. Remove cement waste to a tip site** as approved by the eThekweni Solid Waste Department. **Provide a waybill for inspection.**

## 2.5. Materials Management

### 2.5.1. Stockpile Management

- a ) **Stockpiles not to obstruct natural water pathways.**
- b ) **Stockpiles not to exceed 2m** in height unless otherwise permitted by the engineer.

- c ) **Cover exposed stockpiles** against wind or heavy rain, by vegetation, or sheeting, depending on the duration of the project. Stockpiles may be further protected by the construction of berms or low brick walls around their bases
- d ) **Keep stockpiles clear of weeds and alien vegetation** growth by regular weeding.

#### 2.5.2. Handling of Hazardous Materials

- a ) **Mix concrete on a designated impermeable surface.**
- b ) **No washing of concrete transporting vehicles** on the site unless in a bunded area provided frequently cleared of cementitious waste.
- c ) **No washing of asphalt or any other bituminous transporting vehicles** on site.
- d ) **No mixing of lime and other powders during excessively windy conditions.**
- e ) **Store all vehicle maintenance and repair substances in sealed containers** until they can be disposed of / removed from the site.
- f ) **Transport Hazardous substances / materials in sealed containers or bags.**
- g ) **No spraying of herbicides / pesticides under windy conditions** and must comply with OHSA specs and other chemical handling laws.
- h ) The **Contractor is to outline a method statement** for the dealing with accidents/spillages of hazardous materials. This statement must be handed to the Engineer as well as to DWAF should an incident occur.

#### 2.6. **Water Quality**

*Water quality is affected by the incorrect handling of substances and materials. Soil erosion and sediment is also detrimental to water quality.*

*Mis-management of polluted run off from vehicle and plant washing and wind dispersal of dry materials into rivers and watercourses are detrimental to water quality.*

- a ) **Mix / decant all chemicals and hazardous substances on a tray or on an impermeable surface.** Waste from these should then be disposed of to a suitable waste site.
- b ) **Do not contaminate the soil or ground water on site with any chemicals or hazardous substances** eg cement wash from wheelbarrows, Rhinolite excess washed out and PVA paint waste water. Decant all waste water from washing into a bunded facility which must be cleared regularly.
- c ) **Prevent run off from vehicle or plant washing from entering the ground water.** Wash water must be passed through a three – chamber SOG trap prior to being discharged as effluent to a regular municipal sewer.

d ) **Do not bathe or wash clothes or tools in nearby stream, river, other open water body or natural water source** adjacent to or within the designated site. Municipal water (or another source approved by the Principal Agent) should instead be used for all activities such as washing of equipment, or disposal of any type of waste, dust suppression, concrete mixing, compaction, etc.

## **2.7 Maintenance of Construction Camp**

### 2.7.1. Surfaces

- a ) **Monitor and manage drainage of the camp site** to avoid standing water and soil erosion
- b ) **Do not discharge run-off from camp site into neighbouring properties.**

### 2.7.2. Ablutions

- a ) **Maintain chemical toilets in a clean state and move them** if required to ensure that they adequately service the work areas. Appoint an internal staff member to sanitise the toilets twice daily when in heavy use to encourage the use of the facility.
- b ) **Ensure the surrounding bush or open areas are not being used as toilet facility.**

### 2.7.3. Camp Waste Disposal

- a ) **Ensure all litter is collected from the work and camp areas daily and contained.**
- b ) **Emptied bins and / skips regularly** and waste should be disposed of at a registered landfill site. **Keep waybills for review** by the Principal Agent/EO of such disposals .
- c ) **Use a registered chemical waste company to remove waste from chemical toilets on site. Keep service receipts for review.**

### 2.7.4. Eating Areas

- a ) **Regularly service and clean eating areas** to ensure the highest possible standards of hygiene and cleanliness.

### 2.7.5. Housekeeping

- a ) **Keep the camp and working areas are clean and tidy.**

## 2.8. Staff Conduct

### 2.8.1. Environmental Education and Awareness

- a ) **Environmentally induct all contractor and sub-contractor staff** into the contents of the CEMP.
- b ) **Monitor the performance of construction workers** to ensure that the points relayed during their induction have been properly understood and are being followed. If necessary, the EO and / or a translator should be called to the site to further explain certain aspects of environmental or social behaviour that are unclear.

### 2.8.2. Worker Conduct on Site

- a ) **Follow the rules in the contractors protocols all times.**

## 2.9. Conservation of Natural Environment

### 2.9.1. Fauna and Flora

- a ) **No gathering of firewood, fruit, muthi plants, crops, or any other natural material** on site or in areas adjacent to the site is prohibited.
- b ) **No hunting** of birds and animals on site and in surrounding areas.
- c ) **No snares and traps** on site and in surrounding areas.
- d ) **Re-vegetate stripped areas and remove of aliens by weeding.** This significantly reduces the amount of time and money that must be spent on alien plant management during rehabilitation.
- e) **Control alien vegetation encroachment onto site** as a result of construction activities during construction.

## 2.10. Social Impacts

Regular communication between the contractor and outside people is important for the duration of the contract

### 2.10.1. Disruption of Infrastructure and Services

- a ) **Restrict contractor's activities and movement** to designated construction areas.
- b ) **Direct members of the public or other stakeholders, to the Principal Agent or Contractor,** or provide a number on which they may contact the Principal Agent or Contractor.
- c ) **Be polite and courteous with the public or other stakeholders at all times.** Failure to adhere to this requirement may result in the removal of staff from the site by the Principal Agent.

- d ) **Do not disrupt access for local residents** without the Principal Agent's permission.
- e ) **Inform neighbours in writing of disruptive activities at least 24 hours beforehand.** This can take place by way of leaflets placed in the postboxes giving Principal Agent's and contractors details or other methods approved by the Engineer.

#### 2.10.2. Visual Impacts

- a ) **Point lighting on the construction site downwards** and away from oncoming traffic and nearby houses.
- b ) **Keep the site clean to minimize the visual impact.**
- c ) **Maintain screening as work progresses.**

#### 2.10.3. Noise

- a ) **Keep machinery and vehicles in good working order** for the duration of the project to minimize noise nuisance to neighbours.
- b ) **Give notice of particularly noisy activities to residents adjacent to the construction site.** Examples of these include :
  - Noise generated by jackhammers
  - Blasting
  - Drilling
  - Dewatering pumps
- c ) **Restrict noisy activities to the times given** in the Contracts Protocol.

#### 2.10.4. Communication with outside people

- a ) The Engineer and Contractor are responsible for ongoing communication with those people that are interested/affected by the project.
- b ) **Have a complaints register at the site office.** This should be in carbon copy format, with numbered pages. Any missing pages must be accounted for.
- c ) People need to be made aware of the existence of the complaints book and methods of communication available to them.
- d ) Queries and complaints are to be handled by:
  - Documenting details of such communications
  - Submitting these for inclusion in the complaints register

- Bring issues to the Engineer's attention immediately
- Taking remedial action as per Engineer's instruction

### **2.11. Cultural Environment**

- a ) Possible items of historical or archaeological value include old stone foundations, tools, clayware, jewellery, remains, fossils, e.t.c.
- b ) Should something of this nature be uncovered, the Research and Professional Services Division of AMAFA should be contacted and work should be stopped immediately.

## **4. POST-CONSTRUCTION ACTIVITIES**

### **4.1. Construction Camp**

- a ) All structures comprising the construction camp are to be removed from the site.
- b ) c ) The Contractor must arrange the cancellation of any temporary services.

### **4.2. Land Rehabilitation**

- a ) All surfaces hardened due to construction activities are to be ripped and imported materials thereon removed.
- b ) The area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, diesel, etc. and these should be cleaned up.
- c ) All rubble is to be removed from the site to an approved disposal site. Burying rubble on the site is prohibited.
- d ) The site is to be cleared of all litter.
- e ) Surfaces are to be checked for waste products from activities such as concreting or asphaltting and cleared in a manner approved by the Engineer.
- f ) All embankments are to be trimmed, shaped and replanted to the satisfaction of the Engineer.
- g ) The Landscape plan must be implemented as per the approved plan.

### **4.3. Material and Infrastructure**

- a ) Fences, barriers and demarcations associated with the construction phase are to be removed from the site unless stipulated otherwise by the Engineer.
- b ) All residual stockpiles must be removed to spoil or spread on site as directed by the Engineer.
- c ) All leftover building materials must be returned to the depot or removed from the site.
- d ) The Contractor must repair any damage that the construction works has caused to neighbouring properties.

### **4.4. General**

- a ) Meeting is to be held on site between the Engineer, EO and the Contractor to approve all remediation activities and ensure that the site has been restored to a condition approved by the Engineer.
- b ) All areas where temporary services were installed are to be rehabilitated to the satisfaction of the Engineer.

## **5. SPECIAL MEASURES RELATED TO SITE**

### **5.1. Compliance with laws applicable to the development**

- a ) The requirements of the eThekweni Municipality Fire and Emergency Services must be adhered to.
- b ) All relevant byelaws and other forms of municipal regulations related to a construction process must be adhered to.
- c ) All provincial ordinance and acts in terms of the conservation of natural resource, biodiversity and the cultural heritage relevant to the site must be adhered to.
- e ) All provisions and sections of NEMA relevant to the site must be adhered to.
- f ) All regulations promulgated under the National Forests Act ( 1998 ) must be adhered to.

### **5.2. Geotechnical measures**

- a ) The recommendations of the Geotechnical Reports must be strictly adhered to.

### **5.3. Compliance Reports**

- a ) There will be a monthly compliance report which will report on the monitoring compliance during that month. Any aspects of non – compliance, complaints, issues or problems will be highlighted in these reports which will be forwarded to the Department of Agriculture and Environment Affairs, eThekweni Environment Branch, The Client and the Contractor.

### **5.4. Penalty clause for non - compliance**

- a ) Penalties may be imposed on contractors for non – compliance by the developer. These penalties would include:
  - The rectification of all transgressions or damage at the contractor's expense.
  - The cessation of work until a matter has been investigated, reported on and rectified.
  - The reporting of a transgression to the relevant authorities, which may lead to their prosecution in terms of the relevant legislation.
  - The Operator has a schedule of fines for non-compliance during the operational phase and they are to be issued after prior warning of non-compliance was issued or issued immediately if the situation warrants it.

## 6. OPERATIONAL MANAGEMENT

### 6.1 BODY COPORATE (BC):

- a) **Carry the Operational phase of the EMP over from the Developer to the BC** to be incorporated into the conditions of establishment and is to be upheld by them for perpetuity.
- b) **The EMP is a living document and must be kept current** by having an environmental consultant review it from time to time.
- c) **The BC is to maintain a 100% indigenous and endemic philosophy** throughout the estate at all times.
- d) **The BC is to ensure the lawned areas and flower bed areas are enriched with mature organic compost enriched with bio-enzymes**
- e) **The BC is to supplement the organic compost with inorganic fertiliser as may be required from time to time.**
- f) **The BC is to ensure the storm water management system is able to cope with the storm water generated.**
- g) **The BC is to ensure any signs of erosion is immediately brought under control and revegetated** after the source of the erosion has been dealt with.
- h) **The BC is to ensure that alien vegetation does not become established** in the rehabilitated areas and will ensure all residents maintain their sites alien free.
- i) **The BC is to maintain the grassland** according to the Grassland Management Guidelines as produced by the eThekweni Municipality Environment Management Branch.

## 7. SECTION F: CONTACT NUMBERS (AS AT OCTOBER 2002)

<b>7.1. General Numbers</b>	
eThekwini Police	Emergencies : 031 36100 00 General enquiries : 031 300 3399
eThekwini Fire Department	Emergencies : 031 361 00 00
eThekwini Electricity	Help line : 0801 313111
eThekwini Water	0800323235
eThekwini Waste Water (Emergencies and general enquiries)	Help line : 0800 323235
eThekwini Environmental Branch	031 3117000
Department of Water Affairs and Forestry	Mr. Linn Gravelet – Blondin 24 hr pager no 031 3683636 ( will ask for code : 4674 ) Cell : 082808 9916 or Water Quality Division 031 3362761 (office hrs)
Abzorbit ( 24hr response to oil and chemical spills on land or water, bioremediation, distributors of PEAT SORB )	24hr Emergency Response Toll Free 0800303303 Doug : 083 269 8790 Gerald : 083 2536618
PRUNIT ( Plant resources project run by DSW Contacted for clearing indigenous plants not required on site for use elsewhere )	Lindsay Strachan : 031 2631372 Richard Wynn : 082 415 8093
FFS Refineries (for free collection of used lubricating oil )	031 465 1466

<b>7.2. Waste Management Contact Details</b>	
Durban Solid Waste ( DSW ) Disposal Branch- Help line ( location of disposal facilities )	031 2631371 031 2631310
DSW Business Branch (For arranging the collection of refuse )	031 3024825 Fax 031 2631122
ROSE Foundation (For free collection of used lubricating oil )	0800 107 107

<b>7.3. Permitted Hazardous Waste Sites and Hazardous Waste Contractors</b>	
Bulbul Drive, Chatsworth Waste Services (Handles general and low hazard waste )	Waste Services 031 460 4600
Shongweni ( Enviroserv Waste Management ) ( Handles general and low hazard waste )	Site ( Kevin Nadasen ) : 031 7691134 Enviroserv 031 9021526

<b>7.4. DSW Permitted General Waste Sites</b>	
Bisasar Road - Springfield	031 2631371
La Mercy	083 469 8034
Mariannahill	031 7008929
Kwamgenwa ( South Coast )	Morgan Nadasen 031 4625320

<b>7.5. DSW Non – managed Disposal Sites (For Building Rubble, Spoil Material, Garden Refuse)</b>	
Shallcross ( Near Chatsworth )	031 7007829
Wyebank ( Kloof )	031 7007829

<b>7.6. Garden Refuse Sites</b>
Bellair Road (Full recycling facility, accepts materials such as glass, plastic, steel, copper) Canehaven Drive (Phoenix); Chatsworth (Aggitarius Street); Glanville Road (Woodlands); Malacca Rd. (Durban North/Effingham); Merebank (Travencore Rd) Riverside Rd; Tara Road

