

**PROPOSED STONEWOOD MIXED USE ESTATE ON
ERF 37119 (FORMER PORTION OF PORTION 41 OF
FARM 725) KRAAIFONTEIN**

**ENVIRONMENTAL MANAGEMENT PROGRAMME
(CONSTRUCTION AND OPERATIONAL PHASES)**



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October 2017

STONEWOOD ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)

CHAPTER A: GENERIC INFORMATION

A1. INTRODUCTION

A1.1 Background and scope

Bo Mo Properties (hereafter 'the Developer') has appointed Johan Neethling Environmental Services cc (hereafter JNES) to prepare the Environmental Management Programme (EMPr) for a mixed use development on Erf 37119, Kraaifontein.

The EMPr contains information from the Basic Assessment Report and Specialist studies undertaken in the Basic Assessment Process.

The aim of the EMPr is to provide a set of guidelines and actions aimed at addressing potential environmental risks and impacts associated with the construction, operation and decommissioning phases of the project, and will be included in contract documentation between the Developer and its contractors. The EMPr also provides assurance to regulators and stakeholders that their requirements with respect to environmental and socio-economic performance will be met, and provides a framework for compliance auditing and inspection programmes.

By virtue of the fact that this document has been compiled as part of a Basic Assessment application there exist a legal obligation for the specifications of this EMPr to be complied with should an Environmental Authorisation be issued by DEA&DP for this project.

Financing of environmental control requirements outlined in this document, as they relate to each of the development phases of the project, is the responsibility of the Developer unless another party has been identified as the responsible party.

The implementation of the environmental management plans for the construction and operational phases (CEMP and OEMP) contained in this EMPr must be monitored and externally audited as detailed in each of those plans, to ensure that the management specifications are correctly implemented and that there is proper record keeping and reporting to support this.

The EMPr covers the, construction and operational phases of the project and provide the necessary guidelines to the Environmental Control Officer (ECO), consulting engineers and construction supervisors, to ensure that during the construction period the contractors and subcontractors fulfil their roles in an environmentally responsible way and that the HOA, to be formed during occupation of the development, understand their role in optimum environmental management during the operational phase.

The EMPr covers such aspects as the environmental policy set for the various phases of the development and the goals, objectives, targets and actions needed to achieve the overall policy.

It is the responsibility of the Developer, and any other development entity that may develop any phase of the overall project, to ensure adherence to the recommendations of the EMPr, and to review the results of the monitoring reports and to facilitate any corrective action that may be necessary.

A1.2 Qualifications and Expertise of the Environmental Assessment Practitioners (EAPs) who compiled this EMPr

Dr Johan Neethling is the sole member of Johan Neethling Environmental Services cc. He started the business in 1997 after retiring as Chief Director of CapeNature, from a career of more than 30 years in the environmental and nature conservation field. He is a member of the International Association of Impact Assessment and a founding member of Environmental Assessment Practitioners Association of South Africa. After founding his environmental practice more than 10 years ago he has executed more

than 200 Basic Assessment/Scoping and EIA processes for large and small developments. He has compiled more than 150 Environmental Management and Maintenance and supervised the implementation of these projects as the Environmental Control Officer (ECO). See **Appendix A** for his CV.

A2 SITE LOCATION AND DESCRIPTION

Erf 37119, Kraaifontein is situated near Okavango Road, Kraaifontein.

21Digit SG Code: **C05500050003711900000**

Co-ordinates at the centre of the site

33° 49' 37.33" S 18° 42' 05.80" E

The site is 18.1336ha in extent.

The current zoning is Agricultural.

Access will be obtained along Hexrivier Road (to be constructed).



Figure 1: Locality Plan

A3 OVERVIEW OF THE PROPOSED PROJECT

Erf 37119 Kraaifontein is to be rezoned from Agriculture Zone to subdivisional Area and will be subdivided into 2 phases.

Phases F and G are to be developed as individual phases and subdivided with their individual zonings and land uses.

Phase F is an Industrial Use phase of 50 erven adjacent to the Kraaifontein WWTW, with varying in size from 713m² to 8159m² covering an area of 8.2209ha. Public roads and utility services will service this Phase. This phase separates the residential area from the WWTW.

A portion (Phase G) measuring 9.9127ha in extent represents the residential component of the proposed development and makes provision for a total of 14 portions comprising a combination of residential opportunities including, group housing (duplex units), group houses and flats. These proposed residential uses will all belong to, a to be established, Home Owners Association and will be zoned in accordance with the City of Cape Town Development Management Scheme as part of the City of Cape Town Municipal

Planning By-Law (2015) and will include General Residential Subzone 1 (GR1) and General Residential Subzone 2 (GR2) zonings.

These residential erven will function collectively as a new security development and will also be developed as individual phases within the larger development. All the proposed portions will be served by a private road network. This private road will be zoned Open Space Zone 3 (OS3). Provision is also made within the development on this portion for private open space which comprises a combination of passive and active open spaces interacting with the residential components. These landscaped private open spaces will also be zoned Open Space Zone 3 (OS3) zoning and comprise the proposed detention dam, walkways and play areas with street furniture and equipment.

A4 DESCRIPTION OF THE BIOPHYSICAL ENVIRONMENT

A4.1 Climate

The proposed project area falls within the Mediterranean climate region of the South-Western Cape. The area is characterised by winter rainfall, associated with frontal activity originating from the north-west and south-west.

The drier summer months are characterised by strong south to south-easterly winds.

A4.1 Geology and Soils

The site is covered in Tertiary to Recent sand

A4.2 Vegetation

The original Botanical Survey Appendix G4 concluded that after mechanical clearing dense stands of, primarily *Acacia saligna* invasions resulting from earlier agricultural activity, has left little indigenous vegetation of any direct conservation value. The indigenous vegetation remnants present indicate that two plant communities, transitional vegetation between Cape Flats Dune Strandveld and Cape Flats Sand Fynbos, are present. An added examination of the vegetation during Spring, following an initial Summer survey, has only revealed the presence of generalist and widespread, indigenous and exotic, annuals and geophytes (bulbous) species, increasing the number of species recorded from 49 to 75 of which 28% are exotic.

A4.4 Surface water

No surface water occurs on the site.

A4.5 Fauna

The site is totally transformed and surrounded by urban development. No indigenous macro-fauna is expected to survive on the site. Indigenous birds and small rodents were encountered during field inspections.

A5 ENVIRONMENTAL PRINCIPLES

The following Section 2 of the National Environmental Management Act (NEMA) principles were used in compiling this EMP for the Stonewood Development:

- **Environmental management** must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably.
- **Development** must be socially, environmentally and economically sustainable, i.e. meet the "triple bottom line" criteria.
- **Sustainable development** requires the consideration of all relevant factors including the following:
 - that the disturbance of ecosystems and loss of biological diversity are avoided, minimised and remedied;
 - that the disturbance of landscapes and sites that constitute the nation's cultural heritage is avoided, or where it cannot be altogether avoided, is minimised and remedied;

- that the development, use and exploitation of renewable resources and the ecosystems of which they are a part do not exceed the level beyond which their integrity is jeopardised;
 - that a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions.
- **Environmental management must be integrated**, acknowledging that all elements of the environment are linked and interrelated, and it must take into account the effects of decisions on all aspects of the environment.
 - **Community well-being and empowerment** must be promoted through environmental education, the raising of environmental awareness and the sharing of knowledge and experience and other appropriate means.
 - **Capacity building and education:** The EMPr must play a role in developing the understanding, skills and capacity of the employees on, and people surrounding, the project of environmental management principles and the concept of sustainable development.
 - **Duty of care:** Every person (professional consultants, developers, contract workers and community members) associated with the development have a duty to act with due care to avoid damage and pollution to the environment and to limit wastage of resources such as water.
 - **Equity:** Environmental Management should ensure equitable access to natural resources, benefits and services to meet basic needs and ensure human well-being.
 - **Good project management:** Good project management depends on reciprocal understanding between the people in the area and the project management team. Decisions must be taken, and executed, in an open and transparent manner, and access to information must be provided in accordance with statutory provisions and directives in the EMPr.
 - **Prevention:** The EMPr must anticipate problems and prevent negative impacts on the environment and on people's rights.
 - **Polluter Pays:** Those responsible for environmental damage must pay the repair costs and the costs of preventative measures to reduce or prevent further pollution or degradation.
 - **Waste management:** The creation of waste must be minimised and avoided where possible. Waste recycling, separation at source and safe disposal of unavoidable waste should be encouraged.

CHAPTER B

DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME (CONSTRUCTION PHASE)

B1. INTRODUCTION

B1.1 Background and scope

The developers of the above property wish to develop a mixed use industrial and residential estate with ancillary infrastructure such as open spaces, roads, water, sewerage and electricity connections.

This document contains the Construction Environmental Management Programme (CEMP) for the project and the specifications which, the Developer, Contractors, Professional Consultants, and all other persons involved with the project, will be obliged to adhere to during the construction period. This document will form part of all construction contracts entered into between contractors and developers (see definitions below).

This document further covers all construction work such as the laying of bulk services, laying of individual services to connect to buildings, irrigation systems, construction of roads and boundary walls for the whole project.

B1.2 Terms of Reference

Johan Neethling Environmental Services cc was appointed by the Developer to prepare the required Construction EMP for the project.

B1.3 Presentation of CEMP

The purpose of the CEMP is to set environmental objectives and targets for the developer, professional consultants, contractors and subcontractors to achieve during the construction of the project. The following are important premises of the plan:

B1.3.1 Environmental policy

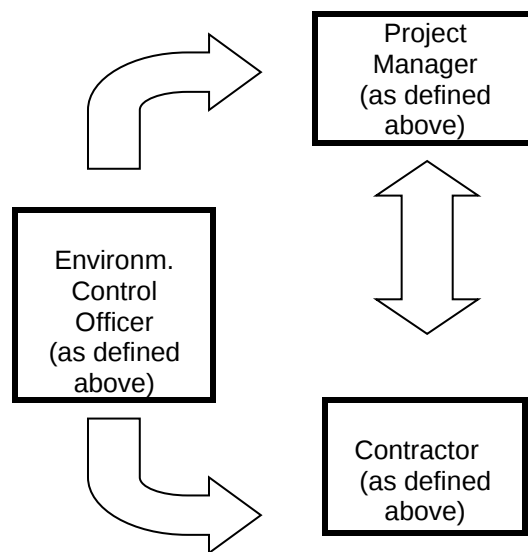
A construction environmental policy has been formulated to guide the CEMP. The policy incorporates key elements of the environment and is guided by environmental legislation and guidelines.

B1.2 Definitions

Construction:	This means all construction work to be undertaken during the construction phase.
Contractor:	Any person or persons and /or corporate entities contracted by the developer (as defined below) to undertake any construction work on the site.
Developer:	For the purposes of this document "developer" will refer to a person or persons, associations or corporate entities initiating, guiding and controlling any development on the site, until final completion of the project.
Professional Consultants:	All professional persons employed by the developer on the site, such as consulting civil, and electrical engineers, architects, land-surveyors, environmental consultants and landscape architects.
Environmental Control Officer (ECO):	Any person who is employed by the developer (as defined above) to guide and oversee all environmental matters on site and enforce the conditions of this CEMP. See 2.4 below for the duties of the ECO.
Project Manager (PM):	This term refers to any person who is appointed by the developer (as defined above) on the site for the purposes of overseeing, guiding and controlling any development.
Site:	Erf 37119 (Former Portion of Portion 41 of Farm No 725) Kraaifontein.
No-go area:	Areas demarcated as such by the ECO and PM. No-go' areas are defined as environmentally sensitive areas and those areas not required by contractors for construction activities. The Project Manager, in consultation with the ECO shall demarcate "no-go" areas by appropriate means, such as danger tape and in some cases steel wire fences.
Construction areas:	Those areas actually needed for construction and so demarcated by the Project Manager.

B1.3.3 Organisational structure

The organisational structure identifies the responsibility and authority of the various entities involved in the environmental management of the construction phases of the project.



B1.3.4 Structure of the plan

The CEMP includes the following broad categories:

- definitions
- policy
- procedures: general
- procedures: specific
- standards
- inspections
- records

B1.3.5 Environmental training

The Contractor shall ensure that adequate environmental training takes place and all employees are given an induction presentation on environmental awareness. Where possible, the presentation needs to be conducted in the language of the employees. Environmental awareness training should, as a minimum, include the following:

- ♦ the importance of conformance with all environmental policies
- ♦ the environmental impacts, actual or potential, of their work activities;
- ♦ the environmental benefits of improved personal performance;
- ♦ their roles and responsibilities in achieving conformance with the environmental policy, procedures and management systems, including emergency preparedness and response requirements;
- ♦ the potential consequences of departure from specified operating procedures;
- ♦ the mitigation measures required to be implemented when carrying out their work activities.

In the case of permanent staff the Contractor shall provide evidence that such induction courses have been presented. In the case of new staff (including contract labour) the Contractor shall inform the ECO when and how he intends concluding its environmental training obligations.

B2. ENVIRONMENTAL POLICY

B2.1 Introduction

The site is abandoned farmland and in a derelict state. It is heavily infested with invasive alien acacias. This human interference has destroyed most of the natural characteristics of the site. The impact of development on the site is likely to be very low as the site supports minimal natural vegetation, and is heavily degraded.

B2.2 Environmental Policy Statement for this Project

The following policy has been prepared specifically for the construction phase of the project.

The professional consultants, developer and contractors and their staff commit themselves to protecting the general environment of the site and its surrounds. In so doing, these persons and bodies commit themselves to:

- a definition of the term 'environment' that encompasses many different facets, including the biological, physical, social and economic components;
- adhering to legislation that is relevant to the site and the construction areas as defined in this document;
- adhering to the environmental specifications as set out in this document;
- protecting future open spaces and those areas within the construction site that are not required for construction activities;
- restricting the impact of construction and limiting the size of construction camps and material storage areas;
- restricting litter and other unwanted building waste to the actual site;
- re-instating areas disturbed as a result of construction activities, and;
- employing sustainable construction techniques where possible (e.g. recycling and re-using construction water within the system);
- protecting, at all times, surrounding public and private infrastructure and onsite infrastructure completed during earlier phases of construction.

B2.3 Project Manager (PM) (See definition above)

The developer shall appoint a Project Manager (PM) with overall responsibility for the construction phase of the project. The PM should be a person intimately involved with any of the construction phases of the project. A 24 hour contact number for the PM must be supplied to the local authority.

B2.4 Environmental Control Officer (ECO) (See definition above)

The ECO reports directly to The Project Manager (PM) who will be the senior person in charge of the project, construction area and site. Should problems arise on site that cannot be resolved between the ECO and contractors, the ECO will report to the Project Manager, who will attempt to resolve these difficulties.

The ECO's duties include the following:

- ensuring that the environmental specifications are adhered to throughout any phase of the project;
- advising the Developer, PM, Professional Consultants and Contractors on environmental issues relating to the project;
- assisting in finding environmentally acceptable solutions to construction problems;
- establishing ongoing environmental awareness with contractors and other consultants and obtaining environmental awareness training materials;
- inspecting the site at frequencies to be determined in consultations with the PM;
- keeping records of all site activities that may pertain to the environment;

- requesting, examining and approving method statements, and;
- recommending additional environmental protection measures, should this be necessary;
- ♦ taking responsibility for reporting any archaeological and/or paleontological finds to the relevant authorities.

B2.5 Meetings

Construction site meetings will be arranged by the Project Manager as and when necessary during the course of the project. The ECO will attend these meetings as and when required.

The ECO shall meet with members of the professional consultants, the various contractors and the Project Manager when necessary.

B2.6 Environmental Awareness Training

The ECO in conjunction with the PM shall arrange Environmental Awareness Training sessions for site personnel whenever new staff comes on site.

The PM shall arrange these awareness sessions with each contractor/ subcontractor prior to that party commencing work on site. The relevant contractor shall organise and finalise the logistics and date of the awareness lecture with the PM. See **Appendix D** below

B3. STANDARD PROCEDURES

B3.1 Environmental Management Plan (CEMP)

Copies of this CEMP will be available at the PM's site offices. All senior personnel (contractors, subcontractors, professional consultants and PM) on the contract will be required to familiarise themselves with the content of the document and to act in such a way that the environment is protected accordingly.

Failure by any employee of contractors and sub-contractors, to show adequate consideration to the environmental aspects of the contract will be considered sufficient cause for the ECO to recommend to the PM to have an employee removed from the site. The ECO may through the PM also order the removal of equipment that is causing continual environmental damage (e.g. leaking oil or diesel).

The PM, on the advice of the ECO, may order any contractor to suspend part or all the works if he/she fails to comply with the specifications set out in the CEMP. The suspension will be enforced until such time as the offending party corrects the procedure or equipment. No extension of time will be granted for such delays and all costs will be borne by the contractor in question.

The system of fines as described under Par 6.2 below will also be invoked by the PM where and when appropriate.

B3.2 Contractors' Boards

Contractors may erect boards to advertise their professional involvement with the project. These boards must be approved by the PM after consultation with, and the written consent of, the local authority.

B3.3 Information Boards

The Project Manager (PM) may allow the erection of information boards at key localities on site in areas that may be affected by the construction works. These boards will inform the personnel on site and the general public about the activities to be, or being undertaken. Suitable signage will also be used to indicate demarcated no-go areas.

Information boards shall be as pictorial as possible. The PM must obtain the local authority's consent before erecting such information boards.

B3.4 Public Awareness

The Project Manager will ensure that the surrounding residents and landowners are aware at all times of the construction activities. Queries from these persons and the general public will be dealt with in a timely and courteous manner by the PM and/or the ECO, if of an environmental nature.

B3.5 Method Statements

The ECO shall develop a pro-forma for method statements. The ECO shall advise contractors, prior to commencing work on environmentally sensitive aspects of the contract, when and how, to complete written method statements, on the pro-forma supplied, for discussion between the PM, ECO and contractor and final approval by the PM and ECO. The method statements must provide details regarding construction procedure, materials (where applicable), timing, and sketches of the proposed construction method/design (where applicable). Method statements may form part and parcel of the design and progress meetings documentation.

Examples of activities that may require method statements:

- Placing and construction of contractors camps.
- Placing of batching plants.
- Placing of material storage areas.
- Temporary access and control.
- Dust control measures.
- Waste disposal management.

The ECO and PM shall from time to time issue instructions for method statements as and when necessary

B3.6 Site Demarcation and Jurisdiction

B3.6.1 Site definitions

The 'site' refers to the whole property rezoned for purposes of the development.

'Construction areas' are defined as all areas required by contractors to undertake actual construction activities such as the placing of services, construction of buildings and other structures. The professional consultants will identify these construction areas.

'No-go' areas are defined as environmentally sensitive areas and those areas not required by contractors for construction activities. The Project Manager, in consultation with the ECO shall demarcate "no-go" areas by appropriate means, such as danger tape and in some cases steel wire fences.

B3.6.2 Jurisdiction

The Project Manager, in liaison with the Building Control Officer of the local authority, has decision-making power within the defined construction areas. The ECO will advise the Project Manager on environmental matters within the construction areas. The ECO has jurisdiction and decision-making power in the "no-go" areas demarcated as above.

B3.6.3 Access

Access to the site shall only be gained through designated entrances and not through adjacent sites and properties. All contractors and their staff shall be identifiable by name and company he or she works for.

B3.6.4 Adjacent residential areas

All contractors shall take note of the fact that residential areas occur adjacent to the site. Contractors shall at all times respect the privacy and rights of these residents by limiting noise, dust and litter and not blocking accesses.

B3.7 Location of Contractors' Camps

Contractors' Camps refer to all storage and stockpile sites, site offices, antennae sites, container sites, ablution facility sites, vehicle washing areas and any other areas required in order to undertake construction work.

The Project Manager shall approve the location of all camps. All camps shall be located in such a way as to minimise environmental (in the broadest sense) impact.

These camps must also be located away from residential areas.

B3.8 Fencing

Contractors must erect and maintain temporary fences along the boundaries of their camps and construction areas as agreed with the PM. No unauthorised entry shall be permitted beyond the perimeter of the fences. These fences may not be erected from materials and in such a way as to constitute a visual eyesore. The ECO shall be empowered to order removal of offending fencing.

The PM may require all contractors to screen unsightly storage areas and other sites. The material (such as shade cloth) to be used must be approved by the Project Manager.

All contractors' staff shall, at all times, be restricted from entering the "no-go" areas.

The ECO shall ensure that all "no-go" areas are appropriately demarcated. The use of danger tape is one possible method. Whatever method is used, such demarcation should be maintained throughout the construction period.

B3.9 Protection of Natural Features, Flora and Fauna

The site is in a degraded condition, and no significant constraints to development were identified.

Any indigenous fauna found on the site during the course of construction activities must be reported to the ECO and the latter shall arrange for trans-location to a suitable conservation area.

Any damage to "no-go" areas and public and private infrastructure shall be repaired at the offending contractor's cost.

Herbicides or other poisonous substances may only be used on site with the written consent of the PM and ECO.

No access to properties outside the site will be allowed without the prior written permission of the relevant land owner.

B3.10 Site Clearing

B3.10.1 Removal of trees and other vegetation.

The site is heavily invaded by exotic acacia plants. These trees must be removed. Care shall be taken to preserve the open space areas and other "no-go" areas.

Where practical, vegetation may be mulched for use in subsequent landscaping.

B3.10.2 Stripping and stockpiling topsoil

Topsoil shall, **without fail**, be stripped and stockpiled in consultation with the ECO. This material shall be replaced in subsequent landscaping. Stockpiled material will be protected from the elements to avoid run off and dust pollution. Stockpiles must not exceed 2m in height and if covered, permeable covering will be used to allow soil to breathe and prevent seeds from rotting.

B3.11 Use of Heavy Machinery and other vehicles

B3.11.1 Earth Moving

Contractor shall ensure that no pollution results from earth moving operations, as a result of oil and fuel spills. "No-go" areas, the open space areas and buffer zones as duly demarcated by the ECO, and previously constructed infrastructure, shall be protected from damage by heavy equipment. Areas within the site used for temporary storage and staging of construction machinery, shall be selected in consultation with the PM and ECO.

Any areas damaged by earth moving, storage and staging of construction plant shall be rehabilitated to the satisfaction of the PM and ECO at the cost of the offending contractor.

Earth moving will take place in proximity to residential areas. This places an added responsibility on the PM and contractors to limit environmental nuisances such as noise and dust.

B3.11.2 Placing of bulk services

To be executed in accordance with the approved engineering designs and to the satisfaction of the PM.

B3.11.3 General use of vehicles on site

Operators and drivers of any vehicle on the site shall be properly licensed and insured to operate such a vehicle.

The use of vehicles of all descriptions will be restricted to demarcated roads and paths. Any user of a vehicle observed to wilfully damage vegetation, fencing and other infrastructure such as roads and services, will be fined at a rate to be determined by the PM from time to time.

B3.12 Fuel and Hazardous Material Storage

All fuel, oil, chemicals etc shall be confined to specific areas approved by the ECO and PM. Gas and fuel shall not be stored in the same storage area.

Fuel tanks shall be bunded to contain 110% of the volume of such tank or tanks.

Contractors shall keep all hazardous materials under lock and key at all times.

All spills should be recorded by the ECO.

B3.13 Fires

The fire danger on site can be high during summer.

No building rubble and litter such as cement bags and timber off-cuts will be burned on site. Braai and cooking fires will only be allowed at the construction camp under controlled conditions and NOT at the construction sites.

Contractors shall supply all site offices, eating areas, workshop areas, stores of fuel and hazardous materials and any other areas identified by the ECO and PM with fire extinguishers.

Welding, gas cutting or cutting of metal will only be allowed in areas where there is no danger of fires starting from the sparks, unless special precautions are taken. Wherever such work is undertaken, fire-fighting equipment shall be immediately available. Contractors shall pay the costs incurred by organisations called out to extinguish any fires started by themselves or any of their site staff.

B3.14 Safety

All contractors shall take the necessary safety precautions to ensure the safety of their staff, other contractors, members of the team of consultants and visitors on site.

Contractors shall also ensure the safety of the public in areas where construction is taking place.

B3.15 Emergency Procedures

B3.15.1 Fires

Contractors shall ensure that their staff are aware of the fire danger at all times and are aware of the procedure to be followed in the event of a fire. The PM and ECO shall be notified immediately in the event of a fire on site.

Fire-fighting equipment shall be ready and easily available at all times.

B3.15.2 Spills of fuels and hazardous substances

Contractors shall identify all fuels and hazardous substances to be stored on site and shall ensure that they know the effects of these substances on their staff and the environment. A copy of the fuels and hazardous substance inventory shall be supplied to the ECO.

Contractors shall keep the necessary materials and equipment on site to deal with spills of any of these materials should they occur. Contractors shall also set up a procedure for dealing with spills, which will include notifying the PM, ECO and the relevant authorities.

The clean up of spills and any damage caused by the spill shall be for the contractors' account.

B3.15.3 Storm conditions

Contractors shall ensure that any sumps/settling ponds etc. are emptied when necessary, especially during rainy periods, to prevent their contents overflowing and polluting the general environment. Contractors shall set up a procedure for emptying any collection points rapidly should they be in danger of overflowing. Contractors may consider covering collection points to prevent their filling with rainwater.

Contractors shall also ensure that rainwater does not run off areas containing oil, diesel cement sludge etc. and thus result in a pollution threat. Stockpiles of fine materials, such as sand, top soil, cement etc. must also be protected from rain, runoff and wind.

Contractors shall ensure that they set up a procedure for dealing with polluted rainwater and clearing these with the ECO prior to commencing with construction.

B3.15.4 Accidents during construction

Contractors shall ensure that their staff know the procedures for dealing with accidents and shall clearly define the emergency procedure to be followed for removing any personnel from the site for medical treatment in the event of serious injury.

B3.15.5 Emergency advisory procedure

Contractors shall ensure that there is an emergency advisory procedure on site before commencing any operations that may endanger the lives of any of their staff, other consultants and contractors, and members of the public, or cause damage to the environment. Contractors shall also ensure that their staff and other contractors and consultants are familiar with all emergency procedures to be followed.

B3.16 Toilet Facilities

Toilets must be easily accessible. If outside toilets are provided, they shall be of a neat construction and shall be provided with doors and locks and shall be secured to prevent them blowing over. Contractors shall be responsible for the maintenance and servicing of the toilets and sewage systems on site. Toilets shall be supplied at a ratio of 1 per 20 workers if connected to a waterborne system, alternatively 1 per 15 workers if chemical toilets are used.

Contractors shall ensure that no spillage occurs when chemical toilets are cleaned and that the contents are properly stored and removed off site. The Contractor shall ensure that toilets are emptied before any builders' holiday.

The placing of toilets shall be done in consultation with the PM and ECO. Toilets shall be placed outside areas susceptible to standing or flowing water in winter. Toilets must be close to construction and other work areas.

Performing ablutions outside toilet facilities is strictly prohibited and transgressors will be fined as prescribed under 6.2 below.

B3.17 Refuse

Refuse refers to all solid waste, including construction debris (cement bags, old cement, tags, wrapping materials, timber, cans, wire, nails etc), waste and surplus food, food packaging, organic waste etc.

Contractors shall be responsible for the establishment of a refuse control and removal system, acceptable to the PM and ECO, in order to prevent the spread of refuse in, and beyond, construction sites. Refuse must be collected in wire cages and be protected from rain, which may cause pollutants to leach out.

Refuse collected from the site shall be stored in an appropriate closed and weatherproof container and removed on a regular basis as agreed with the PM and ECO. Contractors shall advise the ECO as to his proposed disposal sites. Refuse may not be burnt nor buried on site, or vicinity.

Contractors shall clean up their respective construction sites on a daily basis. The general cleanliness of the site shall form part of the inspections of the ECO.

The PM shall impose the fines as prescribed in Par 6.2 below for transgressions in this regard.

B3.18 Eating Areas

Each contractor shall designate restricted places for eating in his working areas, and shall provide adequate refuse bins at all these places, which must be cleaned on a daily basis.

B3.19 Provision of Water

Contractors shall be responsible for providing construction, drinking and washing water for their staff. Suitable arrangements will have to be made with the local authority.

B3.20 Material and Material Stockpiles

B3.20.1 Stockpile sites

Contractors shall identify sites for stockpiling all their materials, including mulched vegetation, topsoil, material from excavation operations, aggregate, sand and bitumen. These sites shall be approved by the ECO and PM. Stockpile sites shall be fenced (unless otherwise agreed with the ECO and PM) screened and perimeter boarding erected. Measures must be implemented to prevent pollution from stockpiles. Such measure may include the erection of platforms on which to stockpile materials or placing a layer of sand and casting a concrete screed or brick paving cover. Dust from the stockpile sites may be a problem during the dry and windy summer months and adequate precautions must be taken.

Stockpile sites for mulched vegetation and topsoil shall be at least 50 m from any sources of contamination (e.g. cement, oil, fuel etc).

At the end of contracts all stockpile sites and borrow pits shall be reinstated to the satisfaction of the ECO. Thus, all fencing, boarding, sand, concrete, platforms etc shall be removed and the area rehabilitated and vegetated at the contractor's cost.

B3.20.2 Imported materials

Care must be exercised not to import construction or re-vegetation materials containing weeds and invasive plant seeds or exotic fauna. The ECO and PM shall be informed of the sources of all construction materials imported to site, and shall be given sufficient time to check the suitability of such material and shall have the authority to reject the material if deemed necessary.

B3.20.3 Excavation and material

Excavated materials, not earmarked for re-use on site, shall be stockpiled in a manner approved by the PM and ECO until removal from site.

B3.20.4 Aggregate and sand stockpiles

Aggregate and sand shall only be stockpiled in approved stockpile sites

B3.21 Concrete and Bitumen Operations

B3.21.1 Cement stores

Cement shall be stored in water tight, windproof containers at approved stockpile sites. Old cement bags shall be placed in similar containers as soon as they are empty. Contractors shall not allow closed, open or empty cement bags to lie around the site.

B3.21.2 Bituminous stores

Temporary storage of bituminous products shall only take place using suitable containers to the approval of the PM and ECO. Under no circumstances shall the spoiling of bituminous products be allowed. These products shall only be spoiled at official waste product sites approved for the purpose by the Department of Water Affairs and Forestry.

B3.21.3 Concrete, plaster and bituminous mixing sites

Contractors shall ensure that mixing of concrete, plaster and bitumen only takes place in a mixing area approved by the PM and ECO. No mixing shall be allowed at any other area. Contractors shall construct and operate a facility to collect runoff from the mixing area and water used to wash equipment containing cement or concrete and prevent it from entering the environment or damaging any component of previously constructed infrastructure.

Contractors shall protect the general environment at the mixing area and any other area where concrete and bituminous materials are loaded and unloaded (eg. using a sand layer, paving or boarding). Cement bags must be placed in wire cages for later removal.

Large scale batching of cement should be done by means of silo storage of loose cement and automated, computer controlled batching, to minimise waste and dust pollution.

Upon completion of the works, Contractors shall rehabilitate the mixing areas to the satisfaction of the PM and ECO.

NB Use of premix concrete and asphalt facilities will obviate many of these problems.

B3.22 Pollution Control

Contractors shall ensure that ground and water pollution resulting from the discharge of "waste water" shall not occur as a result of his construction activities. Pollution could result from the release, accidental or otherwise, of chemicals, oils, fuels, cement, sewage, construction water, polluted storm water, water carrying soil particles or waste products.

Contractors shall construct and operate the necessary collection facilities to prevent such pollution and/or settle out suspended matter and shall dispose of collected materials as approved by the PM and ECO. The Val de Vie storm water system shall not be used for the purpose.

In areas where fuels and hazardous substances (eg. cement, cement-water, bitumen etc.) are stored, and in areas containing materials such as sand aggregate, rubble, mulched vegetation or in any other camps identified by the PM or ECO, contractors shall erect a berm at least 300mm high (earth or wooden) around the perimeter of the stockpile or camp to prevent runoff from entering surrounding areas. Camps located on slopes shall also have perimeter boarding to prevent materials slipping beyond the camp.

Contractors shall construct, operate and maintain settlement ponds/silt traps/sumps etc with suitable oil traps, to collect all runoff from fuel depots, workshops, concrete washing areas, raised storage platforms and equipment washing areas.

Contractors shall stand any equipment that may leak, and does not have to be transported regularly, on water-tight drip trays to catch any pollutants. Drip trays shall be cleaned regularly and shall not be allowed to overflow.

Contractors shall ensure that all water discharged from the works into the ground and/or surface water system complies with any relevant regulations, and/or is to a standard satisfactory to the PM and ECO and Local Authority.

Natural storm water runoff not polluted by site operations requires no treatment.

Contractors shall ensure that all effluents from temporary toilets, fuel storage tanks, paints, cement, cement additives must be removed by

B3.23 Dust Control

All contractors shall take appropriate measures to minimise the generation of dust as a result of their works, operations and activities, to the satisfaction of the PM and/or ECO. The PM shall have the right to stop any work should he consider that sound and appropriate dust control measures are not applied. Below are some of the possible measures to be employed.

Dust - generated by construction works

Sand stockpiles are to be covered with hessian, shade cloth or DPC plastic. Stockpiles are to be located in sheltered areas and the usable/cut face orientated away from the direction of the prevailing wind for that season. Excavating, handling or transporting erosion prone materials in high wind or when dust plumes are visible shall be avoided.

If high winds prevail the Engineer shall decide whether water dampening measures or cessation of activities is required, and if necessary he shall have the authority to temporarily stop certain of the works until wind conditions become more favourable.

Water dampening shall be done with non-potable water. Arrangements must be made with the WWTW to obtain purified water for this purpose.

The use of angle grinders to cut paving stones and chase electrical installations, generate local plumes of dust. Containment of this dust must be considered if

necessary, by cutting all paving bricks in a shade cloth enclosure.

Dust – generated by roads and vehicle movement

Vehicle speeds shall not exceed 40km/h along gravel roads or 20km/h on unconsolidated or non-vegetated areas.

Dust plumes created by vehicle movement are to be monitored.

If access roads are generating dust beyond acceptable levels dust suppression measures must be initiated.

These include, but are not limited to the following:

- Reduction of travelling speeds along the road.
- Restriction of vehicle or plant usage.
- Application of chemical soil binders.
- Application of suitable sacrificial road surfacing.
- If water is to be used for dust suppression, then only the critical areas should be watered. The use of water tankers is recommended above overhead sprayers. The evaporation loss is too high with sprayers. Watering is to be supervised to prevent unnecessary wastage, and runoff into potentially sensitive areas. Water dampening shall be done with non-potable water. Arrangements must be made with the WWTW to obtain purified water for this purpose

The PM shall have the right to stop any work should he consider that sound and appropriate dust control measures are not applied.

B3.24 Erosion Control

The erosion danger is low due to the flat terrain. Contractors shall take all reasonable measures to prevent erosion resulting from a diversion, restriction or increase in the flow of storm water caused by the presence of the new works.

Where erosion does occur, the contractor shall reinstate such areas to the satisfaction of the PM and ECO, and if he has neglected to take reasonable measures, it will be for his account.

B3.25 Site Clean Up and Rehabilitation

B3.25.1 Site clean up

Contractors shall ensure that all structures, equipment, materials and facilities used for construction activities are removed upon completion of the project. Contractors shall clear and clean the construction site to the satisfaction of the ECO and Local Authority upon completion of the project.

B3.25.2 Re-vegetation

The Landscape contractor shall be responsible for rehabilitating and re-vegetating all construction sites. Indigenous vegetation should preferably be used.

B3.26 Temporary Services

Contractors shall advise the PM of all temporary services required on site (e.g. water pipes) and shall submit a plan detailing where and how he proposes to lay such services.

B3.27 Builders' Holiday and Non Working Periods

Contractors shall make adequate arrangements for the period that the construction site remains closed during the holiday or other non-working periods.

All stores (especially the hazardous substance storage sites) shall be secured; all sumps and collection pits shall be emptied and their contents removed; all sand, cement, top soil and fines shall be adequately covered to protect these stockpiles from wind and rain. Contractors shall establish a system whereby they can be notified immediately should any emergencies arise during the holiday or non-working period. Any emergencies on site shall be addressed immediately. See Appendix F

B3.28 Hours of Operation

Hours of operation shall be in accordance with National Building Regulation F6 namely 06h00 to 18h00 on weekdays and 06h00 to 17h00 on Saturdays. Construction activities outside these hours will only be allowed after approval by the Local Authority.

B4 SPECIFIC PROCEDURES

B4.1 Uncovering paleontological and archaeological materials and human remains

In the event that any contractor and/or his staff uncovering any archaeological or paleontological material or human remains, all work in that particular location shall cease immediately and the ECO notified on his 24 hour contact number. The latter shall immediately inspect and secure the site to stop all further interference and inform Heritage Western Cape (Mr Guy Thomas 021 4839685) and the South African Heritage Resources Agency (Ms Colette Scheermeyer 021 4624502). A joint decision shall then be taken regarding future action.

B4.2 Management of Storm Water

There are no natural wetlands on site but the storm water attenuation system consists of road runoff and a piped system to the detention pond. From there storm water is channelled through a decorative recreation area to empty into the concrete canal to the east of the site. The outlet into the canal will be a hardened concrete structure requiring very limited maintenance.

Practical temporary measures must be implemented during the construction phase to channel storm water away from newly constructed infrastructure.

The long term maintenance and operational management of the storm water system is discussed in **Chapter C**

B4.3 Waste Minimization during construction

Material Selection

The developer will, for as far as it is economically feasible select:

- materials for least waste generation during preparation and use during construction
- materials used in the construction which are durable in order to minimise maintenance or replacement
- standard materials to increase re-use/ recycling potential.
- materials which are sourced locally.

Pre-Fabrication

The developer will, for as far as it is economically feasible make use of pre-fabricated components in order to minimise waste on site and permit re-use by the manufacturers of any waste generated during construction of the units.

The developer will strive to order materials "just-in-time" to avoid deterioration/ breakage during storage The developer will strive to (as far as reasonably possible) order materials only from suppliers which will take back any unused/ off-spec or broken materials..

The developer will strive to (as far as reasonably and economically possible) order materials in bulk to reduce packaging but without over-ordering resulting in waste generation. Suppliers which take back the packaging will be favoured by the developer.

Load and unloading

The construction site staff will be trained to load and unload materials correctly to avoid breakage and wastage.

Storing of materials

Care will be taken to ensure that materials are stored appropriately according to supplier specifications to reduce the risk of damage or deterioration.

The use of temporary structures

The developer will attempt to keep temporary structures on site to a minimum.

Where unavoidable the temporary structures used on this site, will be re-used on other sites.

General

Contractors must provide and maintain a method statement for "solid waste management". The method statement must provide information on proposed licensed facility to be utilised and details of proposed record keeping for auditing purposes.

Any illegal dumping of waste will not be tolerated.

Proof of legal dumping must be able to be produced on request.

Bins must be clearly marked for ease of management.

All refuse bins must have a lid secured so that animals cannot gain access.

The waste must be stored in dedicated areas.

Under no circumstances must any waste be burnt.

All waste must be disposed of at a registered site. It is the management bodies' responsibility to ensure that the contracted party responsible for waste disposal disposes of the waste at the correct facility.

B5. INSPECTION PROCEDURES

The ECO shall inspect the site as often as required (but at least twice a month) to ensure that environmental procedures are being implemented and that all contractors are complying with the environmental specifications in this CEMP. The ECO shall be responsible for monitoring and managing the re-instatement of areas damaged during the construction phase.

B6. RECORD OF ACTIVITIES, NON-COMPLIANCE AND CORRECTIVE ACTION

B6.1 Records

The ECO shall keep a record of activities on site, meetings attended, issues arising on site, cases of non-compliance with the CEMP and corrective action taken to solve problems that arise. Records of any environmental, ecological, paleontological and archaeological significant event or finding shall be kept by the ECO to enable analysis of results, and to modify CEMP specifications if necessary.

Such records should be kept together in an office where it is safe and can be retrieved easily. These records should be kept for minimum 2 years and should at any time be available for scrutiny by any relevant authorities. It is recommended that photographs are taken of the site prior to, during and immediately after construction as a visual reference. These photographs should be stored with other records related to this CEMP.

B6.2 Fines and penalties

The PM shall introduce a system of fines and penalties for the transgressions listed below. Such fines will be issued in addition to any remedial costs incurred as a result of not complying with the requirements of this CEMP.

Transgressions will be reported to the PM in writing by the ECO. The PM will immediately inform the alleged offending party of the complaint and its nature. The PM will institute an investigation and convene a hearing to determine the guilt of the alleged offending party. The appropriate fine will be imposed and the amount withheld from outstanding payments to the guilty party.

Any fines imposed must be paid over to a conservation NGO operating in the area.

Contractors/ subcontractors will be liable for transgressions by their staff while the latter are on site.

Professional consultants and their staff, while working and operating on site, are also subject to the system of fines and penalties.

Transgressions and the fines and penalties to be imposed are detailed below:

- Opening up new areas for construction without the written approval of the PM - R 4000
- Any person, vehicle, plant or machine related to a contractor within a designated "no-go" area - R 4000
- Persistent and un-repaired oil and fuel leaks from machinery and vehicles - R3000
- Lighting a fire on site outside the designated braai areas.- R500
- Performing ablutions on site outside of the designated facilities – R500
- Any person, vehicle or item of plant causing a continuing public nuisance as observed by the ECO or members of the public - R1000
- Continuing littering of the site with discarded items - R500
- Erosion- A penalty equivalent to the cost of rehabilitation plus 20%
- Oil or fuel spills - A penalty equivalent to the cost of rehabilitation plus 20%
- Damage to adjacent areas and infrastructure – A penalty equivalent to the cost of restoration or replanting plus 20%

NB Where a contractor/sub-contractor causes damage the PM can either enforce a penalty/fine or make the contractor/subcontractor make good the damage, but not both.

B6.3 Dealing with complaints (ECO)

All complaints of an environmental nature by outside parties (parties not directly linked to the project) shall be dealt with by the ECO in the following manner:

- The ECO will contact the complainant as soon as possible and arrange a meeting if necessary to obtain details of the complaint.
- The ECO will then meet with the PM to jointly devise remedial action.
- The ECO will inform the complainant in writing of how his/her complaint is being dealt with and invite a response as to the complainant's perception of the effectiveness of the measures taken.
- The ECO will keep records of all complaints as part and parcel of his/her reporting system.
- Copies of all complaints and remedial action taken will be forwarded by the ECO to the PM.

B7. INTERNAL REVIEW

An internal review procedure shall be established by the ECO to monitor the progress and implementation of the CEMP. Where necessary, and upon the recommendation of the ECO, procedures that require modification will be changed to improve the efficiency of the CEMP. Any changes or adjustments to the CEMP shall be registered in the records of the ECO. Therefore, adjustment and update of the original CEMP document is not required when these *ad hoc* changes are made.

B8. ENVIRONMENTAL COMPLETION STATEMENT

The ECO should compile an Environmental Completion Statement and the latter must be provided to all relevant authorities to confirm completion of the project and compliance with the CEMP and its conditions.

CHAPTER C DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME (OPERATIONAL PHASE)

C1. INTRODUCTION

C1.1 BACKGROUND AND SCOPE

The above development comprises in summary industrial, and residential units, private open spaces, a conservation area and internal roads.

C1.2 TERMS OF REFERENCE

Johan Neethling Environmental Services cc (JNES) was appointed by the Developer to prepare the required Environmental Maintenance and Operational Plan for the project. It covers environmental aspects of the ongoing management of the estate after completion of construction work.

C1.3 PURPOSE OF THE OEMP

The purpose of the OEMP is to set objectives and standards to be achieved by the Home Owners Association in managing the estate in an environmentally responsible way for the benefit of home owners and spectators and competitors in polo events.

C1.4 STRUCTURE OF THE PLAN

The plan consists of two main sections ie. (i) the infrastructure, which is to be operated, controlled and maintained on the estate and; (ii) management of the storm water system and the conservation area as environmental features.

C2. INFRASTRUCTURE

C2.1 BUILDING WORK

2.1.1 CONTROL OF NEW BUILDINGS

The authority responsible for controlling the construction of new houses on the development is the Home Owners Association. The responsibilities are:

- Receive notification of commencement of building operations on each specific site from the homeowner, including the details of the builder, together with a set of approved building plans,
- Receive builders deposit for site occupation,
- Receive builders application form and fees for electrical and water house connections,
- Hand the site over to the builder, indicate the house connections and plot pegs and provide way leaves for connections to existing services and for working next to existing services,
- Confirm the builder is operating on the correct plot,
- Check building footprint is to size and located within the building restriction lines,

- Check that building profile is in accordance with approved plan,
- Ensure builders are in compliance with the Occupational Health and Safety Act and Regulations,
- Monitor building operations in terms of the “Estate Builders code of conduct”,
- On satisfactory completion of building operations and electrical works release the builders deposit,

Building control activities will exclude:

- Checking for full compliance of the building plans and building to the National Building Regulations, this responsibility must remain with the builder, owner or architect.
- Compliance with municipal building regulations and approval requirements, this responsibility lies with the owner and his architects/ builders.

C2.1.2 MAINTENANCE OF ESTATE BUILDINGS

The responsible authority for maintaining the Estate Buildings is the Home Owners Association.

Maintenance guidelines for the Entrance buildings will be provided by the Developer

C2.2 CIVIL ENGINEERING SERVICES

C2.2.1 Potable water reticulation

Bulk Water meter Chamber

Responsible authority is City of Cape Town.

Potable water is supplied to the development from a bulk water connection from the main municipal supply line.

Bulk water pipeline from the meter chamber

Responsible authority for this service is the Home Owners Association.

Internal water reticulation

The authority responsible for this service is the Home Owners Association.

The potable water and the irrigation pipes on the development will be installed in the same trench and care must be taken, during repairs and maintenance, to ensure that the correct pipes are connected

Water meters will be installed for each consumer, including the clubhouse and gatehouse,

Typical operating and maintenance requirements would be:

- Inspect water main routes, fire hydrants and air valves monthly to check for visible leaks and subsidence.
- Reading of consumer water meters on a monthly basis.

- Undertake water balance exercise by comparing the sum of consumer water meter readings to the bulk water meter readings.
- Ensure CoCT Fire Department inspects fire hydrants.
- Paint and inspect exposed pipes annually.

Emergency procedures for pipe breaks would be:

- Isolate the section of pipe by closing applicable isolating valves.
- Inform consumers of the disruption to the service.
- Identify the pipe size and class from record drawings.
- Contact the previously identified contractor and arrange for repairs, using either material stored on site specifically for repairs or new material supplied by the contractor.
- Open one of the isolating valves and flush out the isolated pipe via a fire hydrant.
- Open both isolating valves and inform consumers of restored service.
- Inform the Estate Insurance of intention to claim.

C2.2.2 Storm water reticulation

Note the Storm Water Management Plan attached to this EMPr. Follow the instructions in the plan for maintenance purposes. Responsible authority for this service is the Home Owners Association.

The goals of Storm Water Management to strive for.

- **IMPROVE QUALITY OF RUNOFF** Remove pollutants through combination of reducing and/or disconnecting impervious areas, and the use of Best Management Practices which infiltrate or capture and treat stormwater runoff. Pollutant removal target: Reduction of post-development annual stormwater pollutant load discharged from the development. site to undeveloped catchment levels,
- **CONTROL QUANTITY AND RATE OF RUNOFF**
Protect the stability of downstream channels by 24 hour extended detention of the 1-year flood event, 24h storm event .

Protect the downstream properties from fairly frequent nuisance floods by up to 10-year peak flow reduced to pre-development flow.

Evaluate the effects of the 100-year RI storm event on the stormwater management system, adjacent property, and downstream facilities and property. Manage the impacts through detention controls and / or floodplain management

- **ENCOURAGE NATURAL GROUNDWATER RECHARGE**
Where appropriate, site specific requirements to be considered.

Typical operating and maintenance requirements would be

- Inspect storm water channels, pipeline routes, manholes and catch pits monthly to identify silting, blockages and erosion, which would need cleaning and repairs.
- Cutting of grass in earth channels.
- Dredging and removal of silt from channels.

Emergency procedures for serious erosion and scouring would be:

- Demarcate the area and restrict public access.

- Contact the previously identified contractor and arrange for repairs.

Storm water is not as critical a service as water, sewer and electricity and it is therefore not necessary to store repair pipes and culverts on site.

Storm water quality treatment

General

Part of the stormwater management plan is to formulate measures required to achieve runoff of an acceptable quality. The City of Cape Town has stipulated in the "Management of Urban Stormwater Impacts Policy" that for a development such as this, suspended solids (SS) should be reduced by 80% and total phosphorus should be reduced by 45%. Furthermore the measures utilised should promote urban biodiversity and enhance amenity and aesthetics of the site and its surroundings. In addition it is considered important to deal with litter and oil and grease discharges appropriately.

Litter

Litter control should be a priority in the design and management of the stormwater system. Litter traps should be located along the main stormwater routes at intervals not exceeding 300m.

The recommended type of litter trap is the Stormwater Cleaning Systems (SCS) structure.

The advantage of these structures is that they are self-cleaning with the litter sliding off the open ended screen into a waste collection bin which can be easily serviced.

A sediment trap is incorporated into the structure.

There will be a head loss across these structures and this must be taken into account in the gradient of the systems.

Suspended Solids (SS) and Total Phosphorus (TP) Removal

As described above, runoff from the site will be discharged to the attenuation dam. This dam is to be designed as extended detention (ED). Typical plan and sectional views are shown in the Storm Water management Plan.

Maintenance of the stormwater system

The Storm Water Management Plan sets out in detail how the Storm Water System must be managed.

C2.2.3 Sewer reticulation

Responsible authority for this service is Home Owners Association.

Typical operating and maintenance requirements would be:

- Inspect the sewer reticulation route monthly to identify any overflows out of manholes.
- Open and inspect the manholes annually during the winter months to identify ingress subsurface water into manhole and any restriction in the flows along the pipelines.
- Inspect pump stations daily to identify if any alarms have been triggered.
- Maintenance on pumps and mechanical equipment refer to the Operating and Maintenance Manual for the pump station.

- The pump stations are designed with one pump permanently on standby; therefore one pump may be removed for repairs and maintenance.

Emergency procedures for overflowing manholes would be:

- Demarcate the area and restrict public access.
- Pump the sewage to the next unblocked manhole, by either using own pump or municipal sewage tanker.
- Arrange contractor to unblock sewer pipe.

Emergency procedures for overflowing pump stations would be:

- Demarcate the area and restrict public access.
- It will not be possible to pump the sewage to another manhole using own pump.
- Contact municipality and arrange for sewer tanker to empty the pump station sump.
- In the event of defects to the sewer pump stations, a 100mm emergency coupling must be provided inside the pump station connected to the rising main. A diesel pump with a suction hose could be placed outside the pump station connected to the rising main and the pump station could be emptied this way.
- Arrange for contractor to repair pumps or electricity supply.

C2.2.4 Road network

Responsible authority for this service is the Home Owners Association.

The road network consists of Asphalt and brick paved roads of varying widths with brick edgings and channels.

Typical operating and maintenance requirements would be:

- Inspect roads, kerbs, drains and road reserve on a weekly basis in order to identify any mechanical damage, surface failures, settlement, erosion, etc.
- Inspect road signs and markings monthly.
- Ensure that the homebuilders keep the roads clean to prevent mechanical damage to the surfacing and brick paving.
- Ensure speed restrictions are adhered.
- Prevent overloaded vehicles entering the development and ensure delivery vehicles do not ride over road edgings, landscaping and irrigation.
- Ensure that water from home building is not constantly drained over the road surface.
- Ensure that mole activities do not undermine the road layers.
- Repair minor defects timely to prevent larger road failures.

Emergency procedures for serious failures would be:

- Demarcate the area and restrict public access.
 - Request the estate maintenance team to repair minor damages or contact the previously identified contractor and arrange for repairs.
 - For major damage contact previously identified contractor for repairs and monitor repair work.

C2.2.5 Attenuation Dam (environmental factors)

Responsible authority for this service is the Home Owners Association.

Typical operating and maintenance requirements would be:

- Remove vegetation that could affect the integrity of the dam walls and check for mole-damage.
 - New dams generally suffer from algal blooms during the first and second summer season when water temperatures rise. This is a natural process before the dams reach an ecological equilibrium. No action is needed apart from, possibly, mechanical removal of thick algal scum.

C2.2.6 Storm Water Crossings

The storm water crossings should be constantly monitored for any possible blockages, especially before and after heavy rainfall periods

C2.2.7 Waste minimisation during operation

Owners of properties will be encouraged to separate waste into recyclable and non-recyclable waste, and waste shall be separated as follows:

Hazardous waste: including (but not limited to) old oil, paint, etc,

General waste: including (but not limited to) domestic refuse, non- recyclable waste;

Recyclable waste shall preferably be deposited in separate clearly marked bins and recycled by the appropriate recyclers. The recycling bins must be easily accessible to residents. Nearby parking is probably a requisite.

All refuse bins must have a lid secured so that animals cannot gain access.

Under no circumstances must any waste be burnt onsite.

C2.2.8 General

Further operation and maintenance activities on the estate would be:

- Programming of the maintenance procedures and compiling maintenance plans for the various buildings and activities on the estate.
- Budgeting for maintenance in conjunction with the managers of the various components of the estate.
- Receive and assess maintenance requests from the estate managers and home owners.
- Billing of consumers.
- Preparation of monthly report for HOA.
- Manage Refuse Removal.

C3. MANAGEMENT OF LANDSCAPED AREAS AND ESTATE WATER FEATURES

C3.1 Introduction

The Maintenance Environmental Management Plan forms the basis of the Environmental Policy which focuses on the protection and enhancement of the natural environment of the estate. It is the source document for the implementing of mitigation programmes, monitoring programmes and other environmental protection procedures throughout the Stonewood Estate. This section of the document focuses in particular on the storm water attenuation system dams and channels and general landscaping

The responsible authority is the Stonewood Home Owners Association.

An estate landscape maintenance team will have to be established. It would be necessary to identify persons responsible for each activity and operation, ensuring that they have the necessary capacity and experience to perform their allotted tasks.

C3.2 General landscaping on the estate

Landscaping on the estates takes place in accordance with an approved landscape plan. The ultimate aim is to create a pleasant and ecologically sound environment for the residents but to also attract such species of fauna which will flourish in the protected environment of the estate and the conservation area.

The landscape architect and landscape contractor will supply the HOA with a landscape maintenance plan and programme. Activities in such a plan should be grouped under suitable headings such as water management, planting programmes, integrated pest control, waste disposal, use of chemicals, fire control, maintenance programmes etc.

Estimates of the inputs needed in terms of materials, time, costs, manpower and equipment demands should be part of such a plan to allow the HOA to budget in advance for the proper maintenance of landscaped features.

With respect to landscaped areas on the Estate, the following is recommended to ensure long term aesthetically pleasing and environmentally friendly landscaping and landscaping practices:

Good professional cultural practice of all landscape areas.

Optimized irrigation practices as well as irrigation installation.

Identify pest outbreaks and treat accordingly especially with biodegradable target specific pesticides.

Ensure best plant nutrition practices.

Keep weeds under control.

Use the right equipment and tools.

C3.3 Management of storm water attenuation dam (ecological factors)

C3.3.1 Water quality

Protecting the water quality of the water features on the estate is an important measure and will enhance the estate and its environment. The greatest impact on the quality of water in the pond and channels on site results from human activities in their proximity.

Water quality has several parameters: - temperature, oxygen content, pH, sediment load (measure of turbidity), metal content, eutrophication (enrichment with fertilizers), presence of organic toxins (e.g. oil). Clean, well-oxygenated water is more aesthetically pleasing and permits the co-existence of greater numbers of living organisms. Polluted, muddy or eutrophic water kills aquatic organisms, creates nasty smells, unsightly scum and a breeding ground for mosquitoes and dangerous bacteria.

C3.3.2 Ways to protect water quality

Keep a buffer zone around the water bodies vegetated with indigenous plant material. This prevents soil erosion and could reduce potential pollution from run-off. Tall vegetation like grasses, shrubs and trees could also provide shade to the water bodies to prevent rise in temperature.

Avoid spraying herbicides to control plants on the water bodies. Manual removal of invasive species could help a lot in protecting the water quality.

Reduce chemical applications on landscaped areas near the ponds. Improper fertilizer and pesticide handling could cause a decline in water quality. From mixing to storage and disposal of these chemicals, proper handling should be practiced to reduce run-off or leaching to the water bodies.

Identify sources of soil erosion – open land, erosion gullies, land scars – and make necessary engineering or planting to reduce levels of soil erosion.

Test surface water and ground water for nutrient and metal content, physical characteristics and bacteria at least once a year to monitor the quality of water on site and to check and evaluate the effectiveness of the water management strategies employed.

C4 METHODOLOGY, SYSTEMS AND PROCEDURES

In order to minimise costs, the initial approach to the project should be simple. Systems will involve the use of simple spreadsheets such as Microsoft Excel. As the project develops, consideration can be given to:

The compilation of an asset register that will be based on an asset management information system.

The development of appropriate service levels and performance measures that take into account residents expectations, strategic goals and legislative requirements.

The compiling of a life-cycle management plan that incorporates routine maintenance, asset renewal or replacement, asset augmentation and disposal.

The compiling of long term cash flow projections for each asset group, including annual cash flow forecasts, and medium term historic and forecast cash flow trends.

The development of a monitoring and improvement programme.

The compiling of an emergency response plan.

J H Neethling

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October 2017

Appendix A CV of Johan Neethling

CURRICULUM VITAE (CV) FOR JOHANNES HENDRIK NEETHLING

1. Position: Member
2. Name of Firm: Johan Neethling Environmental Services cc
3. Date of Birth: 8 May 1943
Nationality: South African
4. Education:

Name of institution	Degree(s) or Diploma(s) obtained	Date obtained
Saasveld College for Foresters	Diploma in Forestry (one year)	1964
University of Stellenbosch	BSc Forestry	1968
University of Stellenbosch	BSc Forestry (Hons)	1969
University of Stellenbosch	MSc Forestry	1970
University of Stellenbosch	PhD Forestry	1974
University of Stellenbosch	HonsB Public Administration (Cum Laude)	1990

5. Membership of Professional Associations:

Founder Member of the Environmental Assessment Practitioners Association of South Africa (EAPASA);
Member of the International Association of Impact Assessment (South Africa).

6. Other Training:

Various Environmental Impact Assessment Seminars

7. Countries of Work Experience:

South Africa, Namibia,

8. Languages:

Language	Reading	Speaking	Writing
English	good	good	good
Afrikaans	good	good	good

9. Employment Record:

From: 1997		To: present	
Employer:	Johan Neethling Environmental Services cc		
Positions held:	Member		
From: 1975		To: 1997	
Employer:	Western Cape Provincial Government: DEA&DP		
Positions held:	Chief Director		
From: 1963		To: 1974	
Employer:	Department of Forestry		
Positions held:	Various		
From: 1962		To: 1963	
Employer:	Department of Posts and Telegraphs		
Positions held:	Pupil Rechnician		

10. Environmental Management Experience:

As an environmental practitioner over the past 19 years, Johan has written over 300 reports dealing with diverse and complex environmental and planning projects. He has undertaken environmental authorisation applications for projects ranging from golf courses, equestrian estates, housing estates, harbours, industrial complexes waste water treatment works, reservoirs, major high ways, bridges, air fields, casino's, shopping centres, dune stabilisation works, resorts and residential development projects.

Johan has also had extensive experience with the approvals of and construction supervision of all civil services (roads, pipelines, waste disposal facilities, waste water treatment facilities and electrical substations). He has environmental management experience in many multi-disciplinary projects, from their inception through to commissioning and monitoring, to ensure environmental compliance with their

conditions of approval and management system recommendations. He has a practical and positive approach to environmental management and implementation of all projects.

11. Other Experience:

He worked for many years in the Department of Forestry(1963 – 1975) and the Cape Provincial Department of Nature and Environmental Conservation (1975 -1997) and became the Chief Executive Officer for the latter Department. In his career he was responsible for a wide portfolio including forest soils research and surveys in South Africa and Namibia, management of plantations, water catchments areas, terrestrial and marine reserves, management of fishing harbours, deep-sea and coastal fishery patrols, sport fishing, eco-tourism, provincial resorts, development of criteria for environmental impact studies, museums and cultural conservation.

12. Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience.

A handwritten signature in black ink, appearing to read 'J H Neethling', with a stylized, cursive script.

J H Neethling

Date: 17 July 2016

APPENDIX B: SENSITIVITY PLAN



Ref: 1) Co-ordinate System WGS 84
2) S.G. Noting M1255, M1401, M1222, M1316

dh&a
david hellig & abrahamse
professional land surveyors
258 Main Street
PRAIRIE, 7446

Telephone: 021-4724086 web site: www.dh&a.co.za
email: dh&a@dh&a.co.za

project **COMBINED**

PLAN OF SUBDIVISION

1) Remainder of Erf 37119 Kraaifontein
2) Remainder of Erf 15599 Durbanville

Scale	1 / 1500 @ A1
Date	Nov. 2014 - Aug 2017
File No	P3496/14(A3)
Plan No	Sub4 Rev 7P

APPENDIX C: EMPr NEMA REQUIREMENTS

Requirements of Appendix 4 of the EIA Regulations (Government Gazette 04 December 2014) and section 24N of the National Environmental Management Act, 1998 (Act No. 107 of 1998):	Included in the EMP in:
(1) An EMP must comply with section 24N of the Act and include (a) details of; (i) the EAP who prepared the EMP; and (ii) the expertise of that EAP to prepare an EMP, including a curriculum vitae;	Appendix A
(b) a detailed description of the aspects of the activity that are covered by the EMP as identified by the project description;	Chapter A
(c) a map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred alternative;	Appendix B
(d) a description of the impact management objectives, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including; (i) planning and design; (ii) pre-construction activities; (iii) construction activities; (iv) rehabilitation of the environment after construction and where applicable post closure; and (v) where relevant, operation activities;	Chapter A to C
(e) a description and identification of impact management outcomes required for the aspects contemplated in paragraph (d);	Chapter A to C
(f) a description of proposed impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated in paragraphs (d) and (e) will be achieved, and must, where applicable, include actions to; (i) avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation; (ii) comply with any prescribed environmental management standards or practices; (iii) comply with any applicable provisions of the Act regarding closure, where applicable; and (iv) comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable;	Chapter A to C
(g) the method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Chapter A to C
(h) the frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Chapter A to C
(i) an indication of the persons who will be responsible for the implementation of the impact management actions;	Chapter C
(j) the time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	Chapter A to C
(k) the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	Chapter A to C

(l) a program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;	Chapter B
(m) an environmental awareness plan describing the manner in which; (i) the applicant intends to inform his or her employees of any environmental risk which may result from their work; and (ii) risks must be dealt with in order to avoid pollution or the degradation of the environment; and	Appendix D
(n) any specific information that may be required by the competent authority.	None

**APPENDIX D: EDUCATION PROGRAMME/ENVIRONMENTAL
INDUCTION**

	ENVIRONMENTAL DO'S	ENVIRONMENTAL DON'TS
Work Site	 Workers and equipment to stay within site boundaries	 Do not enter no go areas
Materials & Equipment	 Use drip trays Report spills	 Do not create dust Do not drive too fast
	 Store in camp at night Check for leaks Ensure loads don't spill	 Do not wash machinery or tools on site
Waste Management	 Use toilets provided	 Don't burn or bury waste No fires on site Report any other fires
	 Use bins provided for cigarette butts & waste	 Eat in designated area Don't eat at dam or river
Natural Environment	 Save water Use only drinking water provided	 Do not damage trees, flowers or rocks
	 Protect animals and archaeological remains	 Do not swim or wash in the dam or river
Danger & Emergencies	 Know emergency procedures & no's Report accidents	 No smoking near gas or diesel
	 Be careful when working with hazardous substances	 Fines will be issued for non-compliance with environmental specifications

ELABORATION ON THE DO'S AND DON'TS OF THE POSTER

Workers & equipment must stay inside the site boundaries at all times.
Nobody may enter areas marked as No-go areas.

Why? Construction activities, equipment and people cause damage and disturbance to the area surrounding the site. As small an area as possible will be affected if all workers and equipment stay within the site boundaries. This is especially important if there are people who live around the site or natural areas around the site which should not be disturbed.

Do not swim in or drink from streams.
Do not throw oil, petrol, diesel, concrete or rubbish in streams.
Do not work in the stream without direct instruction.
Do not damage the banks or plants of streams.

Why? River water may be polluted which could make you sick.
Oil, petrol, diesel, concrete or rubbish will kill plants and animals living in the water. They may also make people who may drink the water downstream sick. Rubbish in the stream also makes it look ugly.
People and machinery working in the stream will damage it and kill plants and animals living in the stream. It may also cause erosion, which is expensive to repair.
The plants on the edge of the stream bind the soil together and prevent soil from getting washed away. Soil washed into a stream may affect people using the water downstream (e.g. for irrigation).

Protect animals on the site.
Ask your supervisor to remove animals found on site.

Why? Animals are an important part of the environment. All animals have a purpose, even snakes which catch mice and rats. Other important animals are owls, chameleons and frogs.

Do not damage or cut down any trees or plants without permission.
Do not pick flowers.

Why? Some plants are rare and may take a long time to grow back, if at all. Plants in the "no go" areas should not be damaged. Some plants will die if their flowers are picked. Rare plants may be lost.

Put cigarette butts in a rubbish bin.
Do not smoke near gas, paints or petrol.
Do not light any fires without permission.
Know the positions of fire fighting equipment.
Report all fires.
Do not burn rubbish/ vegetation without permission.

Why? Leaving a burning cigarette butt on the ground may lead to runaway fires which are dangerous to construction workers, people living around the site, equipment, houses, plants and animals.

Smoking near flammable material is dangerous and may cause an explosion.
Lighting a fire without permission may cause a runaway fire (see above).
Reacting quickly to fires that break out will prevent them from spreading and causing damage

Work with petrol, oil & diesel only in designated areas.
Report any petrol, oil & diesel leaks or spills.
Use a drip tray under vehicles & machinery.
Empty drip trays after rain & throw away were instructed.

Why? Designated areas should have measures to protect against petrol, oil & diesel spills. Oil, petrol and diesel can drip onto the soil and soak into it. Plants will not grow and animals will not live in dirty soil.

It also looks ugly to people living around the area.

Drip trays will prevent oil, petrol or diesel from soaking into the soil and killing plants and animals.

If drip trays are not emptied they may overflow and pollute the surrounding soil. If oil, petrol or diesel are put into a stream, plants and animals living in the stream will be killed. They may also make people who may drink the water downstream sick. Ask your supervisor where drip tray water may be disposed of on site.

Try to avoid producing dust – wet dry ground and stockpiles.

Why? Dust can be irritating to people and can reduce production on site. It can cause problems such as eye irritations and coughs. It also reduces visibility on and around the site, which can be dangerous to drivers and pedestrians, and can cause damage to the surrounding environment.

Soil should not be made too wet because that will cause slippery conditions and safety problems and soil may be washed away

**Do not make loud noises around the site, especially near schools and homes.
Report or repair noisy vehicles.**

Why? Loud noises are irritating to workers and people living around the site. Loud noise can also be harmful to people (especially children) and affect their hearing.

By keeping vehicles in good condition, loud noise can be prevented.

**Use the toilets provided.
Report full or leaking toilets.**

Why? Sewage attracts flies and other irritating pests. If the site is near a river or stream, sewage makes the water smell and people who swim in it or use it to wash their clothes will get sick. It also causes plants to grow too much which blocks the river, which may cause flooding of houses and property.

Regular emptying of toilets is hygienic and will also prevent overflows.

**Make sure that you eat where there is a rubbish bin nearby.
Never eat near a river or stream.
Put packaging & leftover food into rubbish bins.**

Why? Eating areas generate a lot of rubbish and litter (e.g. bottles and packets) which will pollute the site and surrounding areas. Therefore, eating must be done near bins which are placed in the eating.

Rubbish in a stream looks ugly and can be harmful to people's health. It may also kill the plants and animals living in the stream. Rubbish and food left lying around will attract pests (such as rats) which are dangerous to people and cause a health hazard. Also, rubbish left lying around is ugly and unpleasant to look at.

**Do not litter–put all rubbish (especially cement bags) into the bins provided.
Ask your supervisor for a bin if there is none. Bins must be provided.
Report full bins to your supervisor.
The responsible person should empty bins regularly.**

Why? Litter is ugly. It is also dangerous and unhealthy to adults, children and animals walking around the area. Not putting the lid back on the bin will cause rubbish to be blown away. Regularly emptying bins will prevent litter and rubbish flying around the site.

**Always keep to the speed limit.
Drivers - check & report leaks.
Ensure loads are secure & do not spill.**

Why? Speeding is dangerous to people who live in the area, especially children. Speed kills! Faulty vehicles are dangerous to the driver, pedestrians and other motorists. Leaks can also pollute the ground and water and smoke from vehicles can cause health problems. This is a potential danger to other motorists. Also, do not overload vehicles.

Know all the emergency phone numbers.

Why? Prompt reaction to an accident, fire or spill will reduce the risk of serious damage to the environment and to workers.

If rules are broken:

- **Spot fines**
- **Removal from site.**
- **Construction may be stopped.**

Why? Failure to adhere to the EMP may result in spot fines being issued to the company. It is then the Site Agent's responsibility to collect these fines from guilty individuals and he may even deduct fines off your wages.

The fines are meant to act as an incentive for workers to take the EMP seriously.

A person may be removed from site if they continually disregard the specifications in the EMP.

If the EMP is not adhered to, the local Environmental Authority may stop construction.

Report any breaks, floods, fires, leaks and injuries to your supervisor.

MANAGEMENT STAFF HANDOUT REGARDING ENVIRONMENTAL MANAGEMENT PLANS (EMP's)

INTRODUCTION

There is great pressure from development on what remains of our natural resources. From the 1960s onwards there has been a growing awareness of the complex impacts of development and construction projects on the environment. We should all subscribe to the philosophy of Integrated Environmental Management (IEM). IEM is designed to ensure that the environmental consequences of proposed projects are understood and adequately considered in the planning, implementation and management of development projects. IEM is intended to guide the development process and resolve or lessen any negative environmental impacts and enhance positive impacts of a development project.

The unique environment of the Western Cape is its greatest asset. For the prosperity and well-being of current and future generations, this asset must be managed in a sustainable manner for the benefit of all.

The IEM guidelines aim to ensure upfront environmental input during planning and construction and subsequent input during operation and maintenance. Environmental Management Plans (EMPs) are tools that facilitate appropriate environmental input during the construction phase of civil engineering projects, and thus form a crucial component of the IEM process and the ultimate attainment of sound environmental practice during all phases of a project.

WHAT IS THE ENVIRONMENT?

The environment comprises all living and non-living surroundings such as water, buildings, soil, plants, cars, air, humans and their interrelationships. It is important to realise that people form an integral part of the environment.

IN WHAT OTHER CIRCUMSTANCES ARE EMP'S USUALLY IMPLEMENTED?

Legal compliance: In 1989, the Department of Environmental Affairs and Tourism promulgated a new Act, the Environment Conservation Act (No. 73 of 1989) in order to address potential impacts associated with a development project. In 1997, Regulation 1182

of the Environment Conservation Act (ECA) was published and identifies certain activities that could have a significant detrimental impact on the environment. This Act attempts to ensure that future developments are undertaken responsibly and with minimal impacts on the environment. On 1 July 2006 the ECA regulations were replaced with a new set of regulations under the National Environmental Management act (NEMA). These regulations were amended in 2010 and again in 2014.

Any project that involves any of the activities specified in the Act must pass through the environmental impact assessment (EIA) process and must be approved by the Provincial Department of Environmental Affairs and Development Planning (DEA&DP), before construction can start. DEA&DP decides whether or not the project can go ahead and issues a Record of Decision in which there may be certain conditions of approval of a project. A standard condition of approval of the project is that an Environmental Management Plan (EMP) is implemented on site.

NOTE: The implementation of the EMP within the project is not an additional or “add on” requirement. The EMP is legally binding, integral to the contract and is as important as the engineering aspects of the contract.

WHO ENFORCES THE EMP?

In environmentally sensitive environments or on large projects, a full-time Environmental Control Officer (ECO) oversees the implementation of the EMP on site. All instructions to the Contractor are, as normal, issued through the Project Manager (PM).

On smaller projects, or in impacted environments, either a part-time ECO may oversee the implementation of the EMP or the PM is responsible for ensuring the EMP is implemented, and in effect, acts as the Environmental Site Officer.

METHOD STATEMENTS

For each construction site, certain activities require method statements that have to be approved by the ECO and/ or PM prior to that activity commencing on site. For example, an explanation of the solid waste management system on site would be required, including details of how often waste will be removed from site, where waste will be stored, how it will be stored, etc.

Method statements. A *pro forma* method statement form has been included in Appendix E which must be completed for all required method statements by the Contractor and approved by the PM and the ECO, where applicable.

The purpose of method statements is to give the PM or ECO enough information to determine if the Contractor's actions in undertaking the activity will harm the environment. For example, will the solid waste removal system prevent cement bags and other rubbish from flying around the site?

FINES AND HOW THEY ARE COLLECTED

Failure to adhere to the specifications of the EMP may result in spot fines being issued to workers. These fines may range from R200 to R4000 and are deducted from the monthly

payment certificate. Thereafter, it is the responsibility of the Contractor to collect the fines from the guilty individuals. If the EMP is still not being adhered to, guilty individuals may be sent off site and the Environmental Authority may even stop construction.

YOUR INVOLVEMENT AS PART OF A TEAM

The keywords and actions that will determine the success of the EMP and the project are *Team Effort*. The old saying, “a chain is as strong as the weakest link” holds true to the process. Only through co-operative management and empowerment by awareness education can we maintain and improve our environment. Please make every effort to assist us with this development requirement.

For the EMP to be successful, its contents must be communicated to everyone on site. For management (and foremen) this pamphlet serves as an introduction to EMPs. For the general labour force, this involves a short environmental education course that must be given before or soon after setting up on site.

Appendix E: Pro Forma Method Statement



Stonewood Estate

Method Statement No 1:

Date:

PROPOSED ACTIVITY

WHAT WORK IS TO BE UNDERTAKEN (give a brief description of the works)

WHERE ARE THE WORKS TO BE UNDERTAKEN (where possible, provide an annotated plan and a full description of the extent of the works):

START AND END DATE OF THE WORKS FOR WHICH THE METHOD STATEMENT IS REQUIRED:

HOW ARE THE WORKS TO BE UNDERTAKEN (provide as much detail as possible, including annotated maps and plans where possible):

Site representative of contractor:.....

Responsible: Consulting engineer:.....

ECO:

DECLARATIONS AND APPROVALS

DECLARATIONS

1) ENVIRONMENTAL CONTROL OFFICER

The work described in this Method Statement, if carried out according to the methodology described, is satisfactorily mitigated to prevent avoidable environmental harm:

(signed)

(print name)

Dated:

2) PERSON UNDERTAKING THE WORKS

I understand the contents of this Method Statement and the scope of the works required of me. I further understand that this Method Statement may be amended on application to other signatories and that the ECO and ER will audit my compliance with the contents of this Method Statement

(signed)

(print name)

Dated: _____

3) APPROVING ENGINEER

The works described in this Method Statement are approved.

(signed)

(print name)

(designation)

Date: _____

4) APPROVING AUTHORITY

The works described in this Method Statement are approved.

(signed)

(print name)

(designation)

APPENDIX F: TEMPORARY SHUTDOWN CHECKLIST

In the event of a temporary site closure for any period of inactivity longer than 7 business days the Contractor is to notify the ECO. The Contractor shall check the site, ensuring that the following items are addressed and provide a brief written report on compliance to the PM and ECO:

Fuels / flammables / hazardous materials store

1. Fuel stores are as low in volume as practicable.
2. There are no leaks.
3. Stores and outlets are locked.
4. Bund areas are emptied fire extinguishers are serviced and accessible.
5. Emergency and management contact numbers are available and displayed.
6. There are no stores or containers within the 1:50 year flood line.

Safety

1. Site safety checks have been carried out in accordance with the Occupational Health and Safety Act No. 85 of 1993 prior to site closure.
2. All trenches and manholes are secured.
3. Emergency and management contact details are available and prominently displayed.
4. Security personal has been briefed and has the facilities to contact and be contacted by the relevant management and emergency personnel.
5. Night hazards such as reflectors, lighting, traffic signage, etc have been checked and are in place where required.
6. Scaffolds and other structures vulnerable to high winds are secured.

Erosion

1. Dust mitigation measures such as straw, binding agents or similar are in place. Sand and spoil stockpiles to be stabilised or covered with shade cloth.
2. Excavated slopes and stock piles are at stable angles and able to accommodate normal expected storm water flows.

Water and pollution management

1. Toilets to be emptied and secured. Plumbed toilets are to have no water leakages.
2. Refuse bins are to be emptied and secured.
3. Cement and materials store is secured.
4. Plant remaining on site to have as little remaining fuel as possible and are to be checked for leaks. Suitable drip trays are to be placed and secured under all remaining plant.
5. All other drip trays already in use are to be checked and emptied.