

# Maintenance Environmental Management Programme

**For the reopening of an existing stormwater channel from Howard Street to Barracuda Street, Knysna**

Prepared by:



Environmental Management Department

Knysna Municipality

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## TABLE OF CONTENTS

<b>A. DECLARATION</b>	1
<b>1. BACKGROUND</b>	2
<b>2. LEGISLATIVE REQUIREMENTS</b>	3
<b>3. METHOD STATEMENT</b>	6
<b>4. ENVIRONMENTAL MANAGEMENT PROGRAMME</b>	7
<b>5. MITIGATION MEASURES</b>	10
<b>6. POST-EMP OPERATIONAL PHASE</b>	13

**ENVIRONMENTAL MANAGEMENT PROGRAMME**

**A. DECLARATION**

I the undersigned in my capacity as designated below do hereby undertake to ensure that the conditions and recommendations in terms of the Maintenance Environmental Management Programme (MEMP) for the **reopening of an existing stormwater channel from Howard Street to Barracuda Street, Knysna** are implemented and assume responsibility and accountability in this respect.

I further understand that officials from Department of Environmental Affairs & Development Planning (DEADP), SANParks and Eden District Municipality Environmental Health Department may during any phase of this project, conduct an inspection of the maintenance and repair work in order to ensure compliance with the conditions and recommendations in this EMP.

**KNYSNA MUNICIPALITY:**

signature: .....

name: .....

date: .....

post: Director: Technical Services

**PROJECT MANAGER:**

signature: .....

name: .....

date: .....

post: Consulting Civil Engineer

**CONTRACTOR:**

signature: .....

name: .....

date: .....

post: Contractor

**ENVIRONMENTAL CONTROL OFFICER (ECO):**

signature: .....

name: .....

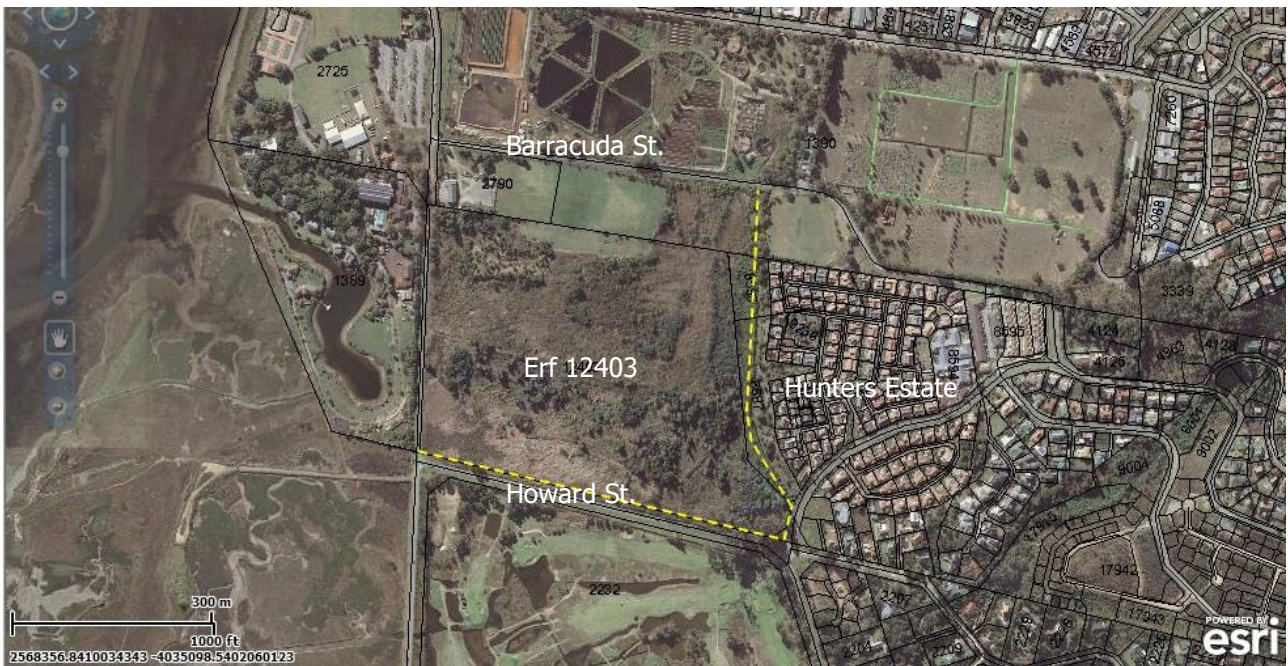
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post: Environmental Officer

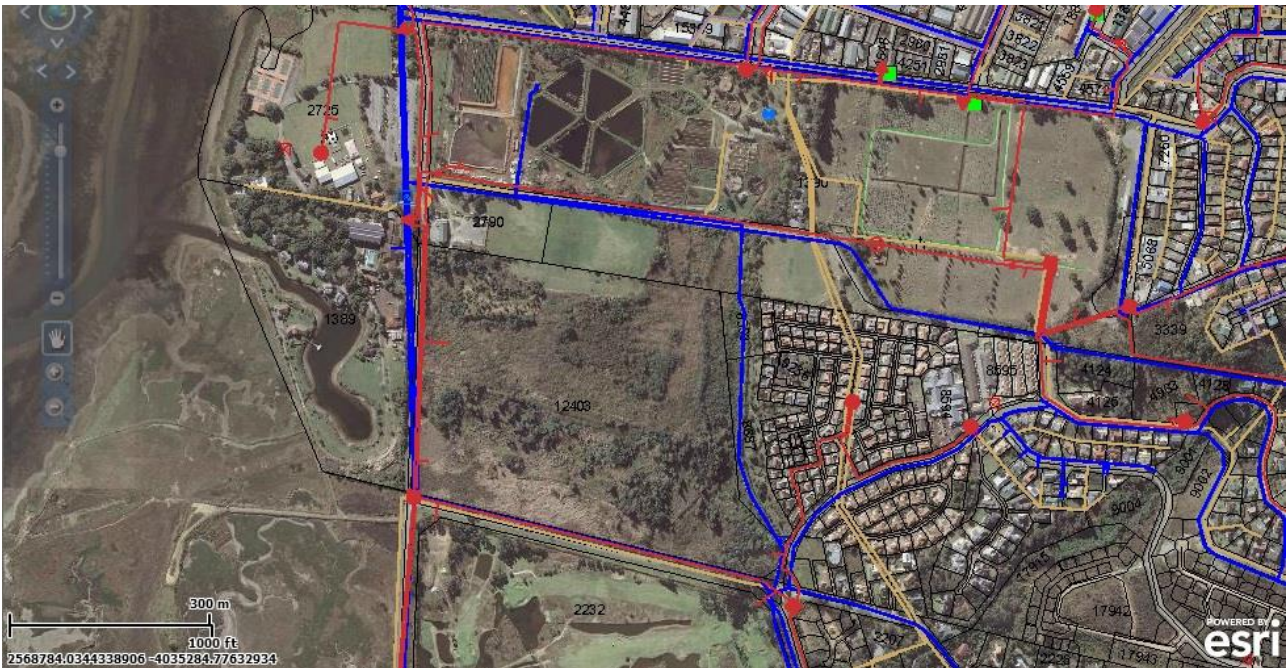
# BACKGROUND

## 1. BACKGROUND

The channel to be cleared was constructed about 27 years ago and has received little maintenance. The channel has silted up and become over grown with reeds to such a degree that it serves no drainage function in its current state. The Howard Street area is also prone to flooding. There is a golf course to the one side of the road and a wetland area on erf 12403 to the other side. A stormwater pipe runs under George Rex Street which takes stormwater from the channel into the estuary. The stretch of channel along Howard Street is about 563 metres, and then runs along the boundary of erf 12403 and Hunters Estate to Barracuda Street for 560 metres (fig.1). Work on the Howard Street section will be done using heavy machinery, while the section running along the boundary will be done by hand to minimise damage to the surrounding environment. A maintenance plan will need to be put in place to ensure that the channel remains operational. It should be noted that an electric cable, water pipe and sewage pipe run along sections of the channel route (fig.2). Digging of the channel should be done under supervision of the Knysna Municipality Technical Services Department to avoid damage to infrastructure.



**Figure 1:** Route of stormwater channel from Howard Street to Barracuda Street (yellow dashed line).



**Figure 2:** Electric cable (red line), sewage pipe (brown line) and water pipe (blue line) on the channel route.

# ***LEGISLATIVE REQUIREMENTS***

## **2. LEGISLATIVE REQUIREMENTS**

The project proponent is required to comply with all necessary legislation and policies applicable to the above mentioned project. These include but are not limited to:

### **2.1 THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 107 OF 1998 (NEMA)**

The purpose of the National Environmental Management Act, 107 of 1998 (“NEMA”) is: To provide for co-operative environmental governance by establishing principles for decision making on matters affecting the environment, institutions that will promote cooperative governance and procedures for co-ordinating environmental functions exercised by organs of state; to provide for certain aspects of the administration and enforcement of other environmental management laws; and to provide for matters connected therewith.

NEMA introduced a comprehensive underlying legal framework to give effect to the environmental rights contained in section 24 of the Constitution. It stipulates environmental management principles, creates various statutory institutions and prescribes detailed procedures for co-operative governance. Another core objective is that of integrated environmental management based on the requirement of environmental authorisations for certain listed activities (so-called environmental impact assessments, or “EIAs”).

The new Environmental Impact Assessment (EIA) regulations (the EIA Regulations 2010) and three lists of activities came into effect on **2 August 2010**. Activities on Listing Notices 1 and 3

are to be assessed in terms of the Basic Assessment process. Activities on Listing Notice 2 are to be assessed in terms of the Scoping and EIA process as greater thresholds are imposed for activities on Listing Notice 2. Listing Notice 3 applies to activities in specific identified geographical areas only.

## **2.2 NATIONAL ENVIRONMENTAL MANAGEMENT: PROTECTED AREAS ACT, 57 OF 2003 (NEMPA)**

The National Environmental Management: Protected Areas Act, 57 of 2003 deals extensively with the regulation and administration of protected areas, and also provides for the manner in which the different statutes governing protected areas should interact.

The stated purpose of the Protected Areas Act is: To provide for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes; for the establishment of a national register of all national, provincial and local protected areas; for the management of those areas in accordance with national norms and standards; for intergovernmental co-operation and public consultation in matters concerning protected areas; for the continued existence; governance and functions of South African National Parks; and for matters in connection therewith.

## **2.3 NATIONAL ENVIRONMENTAL MANAGEMENT: BIODIVERSITY ACT, 10 OF 2004 (NEMBA)**

The stated purpose of the National Environmental Management Biodiversity Act, 10 of 2004 is: To provide for the management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act, 1998; the protection of species and ecosystems that warrant national protection; the sustainable use of indigenous biological resources; the fair and equitable sharing of benefits arising from bio-prospecting involving indigenous biological resources; the establishment and functions of a South African National Biodiversity Institute; and for matters connected therewith.

Note that the Protected Areas Act must, in terms of section 6 of that Act, "be read, interpreted and applied in conjunction with the Biodiversity Act".

## **2.4 OCCUPATIONAL HEALTH AND SAFETY ACT, 85 OF 1983**

The Act provides for the health and safety of persons at work and for the health and safety of persons in connection with the use of plant and machinery; the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work. In terms of this Act, a Health and Safety Officer and Protocol must be implemented on the site.

## **2.5 NATIONAL FOREST ACT, 84 OF 1998**

The Forests Act deals both with natural forests and woodlands, as well as plantations, and is to be administered by the Department of Agriculture, Forestry and Fisheries. Some of the aims of this Act are to promote the sustainable management and development of forests for the benefit of all; to provide special measures for the protection of certain forests and trees; to promote the sustainable use of forests for environmental, economic, educational, recreational, cultural, health

and spiritual purposes; and to promote greater participation in all aspects of forestry and the forest products industry by persons disadvantaged by unfair discrimination.

In terms of regulation 15 of the aforesaid act,

No person may: (a) cut, disturb, damage, destroy or remove any protected tree; or Maintenance Environmental (b) collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a License granted by the Minister.

## **2.6 THE NATIONAL HERITAGE RESOURCES ACT, 25 OF 1999**

The responsible state department for implementing the National Heritage Resources Act, 25 of 1999 is the Department of Arts and Culture. A "heritage resource" is defined in section 1 to mean any place or object of cultural significance.

The purpose of the Act is: To introduce an integrated and interactive system for the management of the national cultural resources". The Act also creates the South African Heritage Resources Agency ("SAHRA") to coordinate and promote the management of heritage resources.

## **2.7 CONSERVATION OF AGRICULTURAL RESOURCES ACT, 43 OF 1983 (CARA)**

The Conservation of Agricultural Resources Act aims to provide for the conservation of natural agricultural resources by maintaining the production potential of land, combating and preventing erosion and weakening or destruction of water resources, protecting vegetation and combating weeds and invader plant species.

## **2.8 NATIONAL ENVIRONMENTAL MANAGEMENT: INTEGRATED COASTAL MANAGEMENT ACT, 24 OF 2008 (ICM)**

The ICM Act aims to establish a system of integrated coastal and estuarine management in the Republic, including norms, standards and policies, in order to promote the conservation of the coastal environment and maintain the natural attributes of coastal landscapes and seascapes, and to ensure that development and the use of natural resources within the coastal zone is socially and economically justifiable and ecologically sustainable; to define rights and duties in relation to coastal areas; to determine the responsibilities of organs of state in relation to coastal areas; to prohibit incineration at sea; to control dumping at sea, pollution in the coastal zone, inappropriate development of the coastal environment and other adverse effects on the coastal environment; to give effect to South Africa's international obligations in relation to coastal matters; and to provide for matters connected therewith.

## **2.9 NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 59 OF 2008**

The National Environmental Management: Waste Act, 59 of 2008 (the "Waste Act") was assented to on 6 March 2009 and commenced on 1 July 2009. The stated objective of the Waste Act is: To reform the law regulating waste management in order to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development; to provide for institutional arrangements and planning matters; to provide for national norms and standards for regulating the management of waste by all spheres of government; to provide for specific waste management measures; to provide for the licensing and control of waste management activities; to provide for the

remediation of contaminated land; to provide for the national waste information system; to provide for compliance and enforcement; and to provide for matters connected therewith.

## **2.10 SANS 10400 APPLICATION OF THE NATIONAL BUILDING REGULATIONS**

The application of the National Building Regulations contains performance parameters relating to fire safety, sanitation systems, moisture penetration, structural safety, serviceability and durability. It also takes into account how the above can be established to reflect social expectations in a manner which supports sustainable development objectives.

## **2.11 NATIONAL BUILDING REGULATIONS**

The National Building Regulations and Building Standards Act as amended must be complied with. This act addresses, inter alia:

- Specifications for draftsmen, plans, documents and diagrams;
- Approval by local authorities;
- Appeal procedures;
- Prohibition or conditions with regard to erection of buildings in certain conditions;
- Demolition of buildings;
- Access to building control officers;
- Regulations and directives; and
- Liability.

# ***METHOD STATEMENT***

## **3. METHOD STATEMENT**

### **3.1. Introduction:**

This section describes the proposed scope of work and how said work will be undertaken.

### **3.2. METHOD:**

Section of channel running adjacent to Howard Street will be cleared using heavy machinery, and the remaining section will be cleared by hand (fig.3).

Works will start from the corner of George Rex and Howard Street to Hunters Estate Drive ( $\pm 563$  m) and proceed by hand through to Barracuda Street ( $\pm 560$  m). The channel to be cleared will be no more than **1.5 metres wide and 1.0 metres deep**.

All excavated material must be removed to an appropriate green waste site. No excavated material, including reeds etc. must remain on site.





**Figure 3:** Channel to be excavated using heavy machinery (orange line) and section to be cleared by hand (blue line).

The use of Biojute or Geotextile should be considered for stabilising and revegetating exposed banks of the channel. Temporary silt screens should be erected in the channel at various locations along the Howard Street channel to prevent excessive amounts of silt from entering the estuary.

A maintenance plan should be put in place to keep the channel functioning. All maintenance work must be done by hand.

## **ENVIRONMENTAL MANAGEMENT PROGRAMME**

### **4. ENVIRONMENTAL MANAGEMENT PROGRAMME**

#### **4.1 GENERAL**

Definition of an “**Environmental Management Programme**”:

*A plan or programme that seeks to achieve a required end state and describes how activities that have or could have an adverse impact on the environment, will be mitigated, controlled, and monitored during the construction period.*

The EMP will address the environmental impacts during the maintenance and repair phase of the project. In order to achieve this, a number of environmental specifications/recommendations are made. These are aimed at ensuring that the contractor maintains adequate control over the project in order to:

- Minimise the extent of impact during maintenance activities.
- Ensure appropriate restoration of areas affected by maintenance and repair work.
- Ensure long term environmental degradation is prevented.

## **4.2 OBJECTIVES OF THE EMP**

The environmental objectives of the Knysna Municipality are to take all necessary steps to ensure that:

- Appropriate pollution control and other environmental protection measures are taken, in accordance with all applicable laws and regulations;
- The degree of impact on the environment should be such that the environment is not further degraded by the proposed activities;
- Measures to protect and rehabilitate the natural environment will be put in place during both the period when the maintenance and repair work is underway and when the infrastructure is deemed to be in a stable and operational state; and,
- Social environmental issues and concerns will as far as is reasonably possible be addressed, aiming to ensure that negative impacts are minimised during this proposed maintenance and repair work.

The EMP also serves to highlight specific requirements that will be monitored during the maintenance and repair work and should the environmental impacts not have been satisfactory prevented or mitigated, corrective action will have to be taken. The document should, therefore, be seen as a guideline that will assist in minimising the potential environmental impact of activities and also as a mechanism through which compliance can be demanded where clear non-compliance with this EMP and a lack of due care for the environment has been or is being displayed by those involved on site.

### **Definition of "mitigation measures":**

Mitigation seeks to find better ways of doing things, by the implementation of practical measures to reduce, limit, and eliminate adverse impacts or enhance project benefits and protect public and individual rights.

## **4.3 COMPONENTS OF THE "EMP"**

### **4.3.1 Introduction**

This EMP adopted a **precautionary approach**, or in the case of management recommendations, a philosophy of 'best practice'. Mitigation measures may then be of a more generic nature without compromising its importance to be implemented.

Therefore the purpose of this EMP is to draft and maintain a detailed management programme that, if put into practise, will effectively prevent/minimise environmental degradation.

### **4.3.2 Flexibility**

The EMP is a dynamic and flexible document subject to review and updating. During the implementation of the maintenance and repair project there is always the possibility that unforeseen issues could arise, this EMP should therefore be revised where necessary to mitigate unanticipated impacts.

#### **4.3.3 EMP Implementation Period**

The EMP will focus on and operate during the entire maintenance and repair phase of the project.

#### **4.3.4 Project Team**

The Project Team will consist of the Project Manager, a Contractor, Contract Labourers and the Environmental Control Officer (ECO). The position of Environmental Control Officer has been created to ensure that the mitigation measures and other requirements set forth in the EMP are adhered to. The ECO will be the Environmental Manager of the Knysna Municipality and SANParks are likely to assume a monitoring role.

#### **4.3.5 Feedback to the ECO and SANParks**

Reporting to the ECO and SANParks should take place during site meetings – in the case of potential “fatal flaws”/crises developing due to implementation of the project, reporting should be done immediately and the potentially adverse activities immediately halted in order that corrective action can be taken.

#### **4.3.6 Failure to comply with EMP**

Outlined below are a number of steps, relating to increasing severity of environmental problems, which will be implemented. The principle is to keep as many issues within the first few steps as possible.

- **Step 1**

The ECO discusses the problem with the contractor or guilty party, and they work out a solution together. The ECO records the discussion and the solution implemented.

- **Step 2**

The ECO, SANParks or DEADP observe a more serious infringement, and notifies the guilty party in writing, with a deadline by which the problem must be rectified. All costs will be borne by the contractor.

- **Step 3**

The ECO shall order the contractor to suspend part, or all, the works. The suspension will be enforced until such time as the offending party/ies, procedure or equipment is corrected and/or remedial measures put in place if required to the satisfaction of the ECO. No extension of time will be granted for such delays and all cost will be borne by the contractor.

- **Step 4**

Breach of contract - One of the possible consequences of this is the removal of a contractor and/or equipment from the site and/or the termination of the contract.

## ***MITIGATION MEASURES***

## 5. DESCRIPTION OF MITIGATION MEASURES

This section of the report serves to prescribe mitigation measures to reduce, limit, eliminate or compensate for impacts, to acceptable/insignificant levels. In setting mitigation measures, the practical implications of executing these measures must be borne in mind. With early planning, both the cost and the impacts can be minimised.

### 5.1 MAINTENANCE ENVIRONMENTAL MANAGEMENT PROGRAMME

The Maintenance Environmental Management Programme (MEMP) forms part of the contract documentation. The Programme must be read in conjunction with the contract documents including the relevant Bill of Quantities and Specifications.

#### 5.1.1 MEMP TRAINING

Mitigation / Management Action	Responsible Agent
The Contractor shall arrange for Environmental Awareness Training programmes for the personnel on site, to the satisfaction of the ECO and SANParks, and familiarise his/her employees with the contents of this MEMP, either in written format or verbally.	ECO & Contractor

#### 5.1.2 SITE ESTABLISHMENT

Mitigation / Management Action	Responsible Agent
<b>Water for human consumption:</b> Water for human consumption will be available at convenient locations on site.	ECO & Contractor
<b>Ablution facilities</b> Ablution facilities (chemical toilets) must be provided in a discrete location immediately adjacent to the construction zone.	Contractor
<b>Eating areas</b> The work team will eat outside of the demarcated construction site area. No cooking fires will be made on site.	ECO & Contractor
<b>Occupational Health and Safety</b> The work team will adhere to Municipal Occupational Health and Safety Policy at all times. The municipal Occupational Health and Safety Officer is Ms Khuthala Mpi who can be contacted on Tel: 044-302-6578.	OHSO & Contractor
<b>Pollution Prevention</b> Silt traps will be established where necessary to prevent silt runoff from entering the Estuary.	ECO & Contractor

#### 5.1.3 MOVEMENT OF CONSTRUCTION PERSONNEL, LABOURERS AND EQUIPMENT

Mitigation / Management Action	Responsible Agent
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The Contractor must ensure that all construction personnel, labourers and equipment remain within the demarcated construction sites at all times. Where construction personnel and/or equipment need to operate outside the boundaries of the site, the contractor must obtain permission from the ECO prior to occupying such an area.	ECO & Contractor
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#### 5.1.4 PROTECTION OF FAUNA

Mitigation / Management Action	Responsible Agent
Under no circumstances shall any animals be handled, removed, killed or be interfered with by the Contractor, his employees, his subcontractors or his subcontractors' employees.	ECO & Contractor
The Contractor and his employees shall not bring any domesticated animals onto the site.	ECO & Contractor
The Contractor shall ensure that the work site be kept clean, tidy and free of rubbish that would attract animals.	Contractor
No poaching of fauna and flora shall be tolerated by the Contractor or his personnel on Site or elsewhere.	ECO & Contractor

#### 5.1.5 EROSION CONTROL

Mitigation / Management Action	Responsible Agent
The Contractor shall protect all areas susceptible to erosion and shall take measures, with the approval of the ECO. The Contractor shall not allow erosion of the channel banks to develop on a large scale before effecting repairs and all erosion damage shall be repaired as soon as possible.	ECO & Contractor
The specifics of erosion protection work will vary from situation to situation. These specifics should be cleared with the ECO and SANParks.	ECO & Contractor
Where required Biojute or Geotextile can be installed to prevent substantial run-off and prevent erosion.	ECO & Contractor

#### 5.1.6 MARINE POLLUTION CONTROL

Mitigation / Management Action	Responsible Agent
Silt traps will be established under the site establishment section to prevent silt runoff from site entering the Estuary.	ECO & Contractor

#### 5.1.7 STOCKPILING OF EXCAVATED MATERIALS

Mitigation / Management Action	Responsible Agent
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All excavated material must be removed to an appropriate green waste site. No excavated material, including reeds etc. must remain on site.	Contractor
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### 5.1.8 SERVICING AND RE-FUELLING OF CONSTRUCTION EQUIPMENT

Mitigation / Management Action	Responsible Agent
Construction vehicles are to be maintained in an acceptable state of repair. No vehicles or equipment with leaks or causing spills will be permitted to operate at the site.	ECO & Contractor
All equipment that leaks must be repaired immediately or must be removed from site.	ECO & Contractor

### 5.1.9 SOLID WASTE MANAGEMENT

Mitigation / Management Action	Responsible Agent
Solid waste must be removed from the construction site on a daily basis.	ECO & Contractor
The Contractor will ensure that all personnel immediately deposit waste in the waste bins provided.	ECO & Contractor
All waste must be transported in an appropriate manner (e.g. plastic rubbish bags) and to a registered landfill site or be deposited at the Knysna Waste-by-Road facility in the Waterfront.	ECO & Contractor
The Contractor may not dispose of any waste and / or construction debris by burning, or by burying.	ECO & Contractor
The contractor will maintain 'good housekeeping' practises as ensure that all work sites are kept tidy and litter free.	ECO & Contractor

### 5.1.10 LIQUID WASTE MANAGEMENT

Mitigation / Management Action	Responsible Agent
The Contractor must take reasonable precautions to prevent the pollution of the ground and / or water resources on and adjacent to the site as a result of his activities.	Contractor

### 5.1.11 VISUAL

Mitigation / Management Action	Responsible Agent
No painting or marking of natural features shall take place. Marking for surveying and other purposes shall only be done with pegs and beacons.	ECO & Contractor

### 5.1.12 SITE CLEAN-UP AND REHABILITATION

Mitigation / Management Action	Responsible Agent
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The Contractor must ensure that all temporary structures, materials, waste and facilities used for construction activities are removed upon completion of the project.	Contractor / ECO
Fully rehabilitate all disturbed areas and protect them from erosion.	Contractor / ECO

## ***POST-EMP OPERATIONAL PHASE***

### **6. OPERATIONAL PHASE MITIGATION GUIDELINES**

Upon completion of all work the ECO, SANParks and DEADP shall survey all rehabilitated areas to ensure compliance with these specifications. Some impacts may need ongoing monitoring and/or management (e.g. effective rehabilitation).

The project will not be deemed as completed until the above mentioned environmental authorities are satisfied of the Contractor's compliance to the EMP.