

# **Transnet National Ports Authority Port of Durban**

## **Storm Water Management Plan**



### 1. INTRODUCTION

The Port of Durban is one of the national economy's key assets and an important resource for the citizens of Durban to access for recreational, educational and social activities. While the Port of Durban supports all these activities and uses, it has over the past century become increasingly degraded due to a variety of stresses placed on this sensitive ecosystem. Despite the level of degradation, the estuary of the Port of Durban remains an important ecosystem that provides vital nursery areas for a number of marine species and is important feeding and roosting areas for a number of bird species, both resident and migratory. However, diminished and exploited habitats are less available to support healthy populations of estuarine and marine organisms and this renders them less able to perform the environmental, social and economic goods and services on which coastal populations depend for their livelihoods and protection. Conversely, the continued health of marine and estuarine systems, and consequently the human systems that depend on them, relies on the maintenance of high-quality habitat.

The Transnet National Ports Authority is actively working towards improving the state of the ecosystem in the bay through the close monitoring and management of activities that may contribute towards the further degradation of the bay. Many of the activities and practices that take place at vessel building and repair facilities have the potential to cause environmental harm, as they often involve the use of hazardous chemicals or the production of toxic waste. In a poorly managed work environment this can lead to contamination of storm water, and pollution of the receiving environment.

The purpose of this Storm Water Management Plan (SWMP) is to ensure that sound environmental management practices are undertaken to minimize adverse impacts on the environment.

In a SWMP, various mitigation measures are organised into a well-formulated plan, which serves as a guide for the management of storm water. As such it should be viewed as a dynamic document that may require updating or revision where necessary.

## 2. SCOPE

The SWMP is only applicable to the Port of Durban.

This includes:

- Island View Precinct
- Point Precinct
- Durban Container Terminal Precinct
- Maydon Wharf Precinct
- Bayhead Precinct

## 3. ABBREVIATIONS AND DEFINITIONS:

### 3.1 Abbreviations:

SWMP: Storm Water Management Plan.

TNPA: Transnet National Port Authority

### 3.2 Word and Concept definitions:

#### **Ecology**

All aspects of the natural environment including physical features such as watercourses, groundwater and soils as well as the biological features such as plants, animals and microorganisms.

#### **Environmental Impact**

An impact or environmental impact is the change to the environment, whether desirable or undesirable, that will be induced by an activity. An impact may be the direct or indirect consequence of any activity.

#### **Fauna**

All living biological creatures, usually capable of motion, including insects and predominantly of protein-based consistency.

#### **Flora**

All living plants, grasses, shrubs, trees, usually incapable of easy natural motion and capable of photosynthesis.

### **General Waste**

Domestic waste, commercial waste, non-hazardous industrial waste and builder's rubble e.g. Paper; plastics; food; tins; and wood; etc.

### **Hazardous Waste**

Any inorganic or organic element or compound that because of its toxicological, physical, chemical or persisting properties, may exercise detrimental acute or chronic impacts on human health or development.

### **Hazardous Waste Landfill Site**

A waste disposal site that is designed, managed and permitted by the competent authority to allow for the disposal of hazardous waste substances as defined in terms of the National Environmental Management Waste Act, 2008 (Act No. 59 of 2008).

### **"No go" areas**

Demarcated areas where access is denied to people; equipment and construction activities.

### **Rehabilitation**

The return of disturbed areas to a safe, stable, productive and self-sustaining condition, consistent with the agreed end land uses.

### **Social Environment**

All the persons who are likely to be directly or indirectly affected by the project activities.

### **Topsoil**

The layer of soil covering the earth, which provides a sustainable environment for the germination of seeds, allows water penetration, and is a source of micro-organisms and plant nutrients.

### **Waste**

Means any substance, whether or not that substance can be reduced, re-used, recycled and recovered—

- a. that is surplus, unwanted, rejected, discarded, abandoned or disposed of;
- b. the generator has no further use for;
- c. that must be treated or disposed of; or
- d. that is identified as a waste by the Minister by notice in a Gazette,
- e. and includes waste generated by the mining, medical or other sector, but—
  - i. a by-product is not considered waste; and
  - ii. any portion of waste, once re-used, recycled and recovered, ceases to be waste.

### **Watercourse**

A natural channel in which water flows regularly or intermittently.

#### **4. OBJECTIVES**

- Outline guidelines for storm water management pertaining to the execution of all operational activities within the Port of Durban.
- Provide procedures with detailed specifications for the management and mitigation of activities that have the potential to impact negatively on the environment.
- Reduce the environmental impact of operational work through the proactive employment of sound and effective work practices.
- To prevent long-term or permanent environmental degradation.
- To provide guidelines on addressing the impacts associated with historically poor storm water designs in the absence of environmental considerations

#### **5. ROLES AND RESPONSIBILITIES RELATING TO THE IMPLEMENTATION OF THE SWMP**

This SWMP shall be presented to all the tenants within the Port of Durban.

The SWMP shall be deemed a guideline to act within the intent and spirit of sound environmental management and to cooperate and enforce the specifications contained therein, as and where necessary.

The purpose of the SWMP is to assist terminals, building contractors and port users to manage the environmental risks associated with its activities. The SWMP will also assist facility operators to conform to legal requirements stipulated in environmental law. This guide has been developed to support the implementation of the Environmental Management Programme and Estuarine Management Plan for the Port of Durban.

Cargo handling and storage facilities have the potential to affect the surrounding coastal environment. Facility operators are, however, often unaware of the environmental risks posed by their practices and the wastes that they generate, in particular the harm caused by generation of waste.

Point source pollution can contaminate coastal waters and sediments, leading to negative impacts on the local community, the fishing and aquaculture industry, recreational users, dredging operations and the ecosystem itself. Maintaining good water and sediment quality is vital for all these uses and values.

## 6. LEGAL FRAMEWORK

South Africa has a number of laws to help protect the environment and port facilities. The National Environmental management Action (Act 107 of 1998) is the main piece of environmental legislation covering water, land, air and noise pollution and waste management.

The terminals shall ensure that the best possible working practices are utilised and all South African legislation concerning the natural environment, pollution and the built environment are strictly enforced to ensure adequate protection of the environment.

In South Africa we have a wide range of laws in place aimed at the protection of the environment. There are environmental laws in specifically applicable to ports within South Africa. This section provides the extracts from various pieces of legislation dealing with pollution prevention, mitigation of environmental impacts and remediation of damage caused.



**NATIONAL ENVIRONMENTAL MANAGEMENT ACT (ACT 107 OF 1998)**

Section 28. (1) Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment.

**NATIONAL WATER ACT (ACT 36 OF 1998)**

Section 19. Prevention and remedying effects of pollution.

- (1) An owner of land, a person in control of land or a person who occupies or uses the land on which
- (a) Any activity or process is or was performed or undertaken; or
  - (b) Any other situation exists, which causes, has caused or is likely to cause pollution of a water resource, must take all reasonable measures to prevent any such pollution from occurring, continuing or recurring.

**NATIONAL ENVIRONMENTAL MANAGEMENT: INTEGRATED COASTAL MANAGEMENT ACT (24 OF 2008)**

Section 69. Discharge of effluent into coastal waters

- (1) No person may discharge effluent that originates from a source on land into coastal waters except in terms of a general authorisation.

## **NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT (59 OF 2008)**

Section 26. (1) No person may—

- (a) dispose of waste, or knowingly or negligently cause or permit waste to be disposed of, in or on any land, waterbody or at any facility unless the disposal of that waste is authorised by law; or
- (b) Dispose of waste in a manner that is likely to cause pollution of the environment or harm to health and well-being.

## **NATIONAL PORTS ACT (12 of 2005): PORTS RULES**

Section 85. Prevention of pollution and protection of the environment

- (1) All persons within a port must take all reasonable steps to prevent, minimise and mitigate pollution or damage to or degradation of the environment.
- (2) Any person who pollutes or causes damage to the environment will bear the costs associated with the combating and cleaning up of that pollution, damage or degradation, and the associated impacts relating thereto.
- (3) If the person or persons responsible for the pollution or damage to the environment fail to take the necessary measures to prevent, minimize, mitigate, combat and clean up the pollution or damage to the environment, including its associated impacts, the Authority may take the necessary measures. The person or persons who caused the pollution or damage to the environment will be liable for the costs associated with the pollution, damage or degradation to the environment, its associated impacts and any mitigating measures.

Section 86. Deposit of harmful matter, including oil, in a port

(1) No person may throw or deposit within port limits any harmful matter or substance of whatsoever nature, including effluent or polluted water or foreign organisms, without the permission of the Authority, and, in the case where it is to be thrown or deposited from a vessel, without the permission of the Harbour Master. The Authority or the Harbour Master, as the case may be, may impose conditions upon the permission to be granted.

(2) No person may cause or allow pollutants, including paint, or cause or allow substances that can cause pollution or negatively impact on the environment, whether or not the substance or pollutant is of a mineral, animal or plant origin, to be dumped on the property of a port or to be discharged or to escape into waters within port limits.

(3) No oil of any description or harmful matter or substances of whatever nature, including effluent, polluted water or foreign organisms, may be discharged or dumped from a –

(a) Vessel, or be allowed to escape from a vessel into any part of the port, or

(b) Terminal or any other source, or be allowed to escape into port waters from a terminal or any other source.

## 7. STORMWATER MANAGEMENT

Storm water is rainwater that flows directly across outside surfaces into storm water drains or directly into waterways. Storm water contamination is a major cause of water pollution of harbour waters.

Storm water should not contain any pollution from the facilities activities. If pollutants such as paint, solvents, oil, dust or other substances are allowed to enter the storm water system or

waterways they can cause serious damage to the environment and pose a health hazard for humans.

The following measures will help you reduce the chance of polluting waterways:

- All staff should be made aware that chemicals including paint, solvents or other toxic substances must not be poured on the ground, into storm water drains or waterways.
- Surfaces must be kept clean.
- Effluent from waste storage must be contained.
- Stockpiles of shot blast must covered and contained.
- Allocate responsibility for keeping outdoor surfaces free of debris.
- These controls should be written into the work instructions and procedures for the organisation.

### FIRST FLUSH

'First Flush' is the term used for the first 15 mm of rain that falls on the operational work areas of a site. To avoid water pollution, it is required that where rainwater falls on operational areas or on surface where contamination exist, all tenants contain and treat the storm water runoff from the premises before it is released into the environment.

Where the existing storm water infrastructure design does not make provision for the treatment of First Flush in relation to the activities on the site, the storm water design shall be changed in consultation with the TNPA Engineering the Environment Department.

First Flush treatment systems must have sufficient capacity to adequately treat the first 15 mm of runoff from the open operational areas.

The main aims of the first flush treatment is to prevent pollution of port waters by the removal of suspended solids, dissolved and undissolved contaminants, excessive turbidity and discoloration so that the water can either be reused onsite, or discharged to the sewer (subject to a municipal approval).

### DUST POLLUTES STORMWATER

Dust and sediment accumulation can pollute storm water. This can occur when dust is swept, hosed or left to be washed by rain into gutters or the storm water system. Dust within the storm water systems can have a profound effect on the environment, which can include sediment contamination, poor reproduction in marine species lower dissolved oxygen levels in water that can result in death of aquatic life. Dust can also carrying hydrocarbons and metals into the environment.

All tenants should ensure that the storm water system actively maintained to avoid the accumulation of sediments, and the reduction of the storm drainage capacity.

### CATCHMENT MANAGEMENT

- Were possible, the existing drainage pattern of the site is to be preserved and maintained.
- Adequate, properly designed and constructed storm water structures must be installed throughout the site, where necessary, in order to limit uncontrolled storm water runoff.
- Side drains and mitre drains must be constructed to prevent erosion and point source discharge of run-off. Scour checks must be constructed in side drains.
- The above structures are to be installed as determined by an engineer on site.
- Storm water may not be discharged into the sewer system without the approval of the eThekweni Municipality.

## **STORMWATER MANAGEMENT PLAN**



- Storm water structures must be maintained in good working order. Should a situation develop where new structures are needed to prevent erosion and to promote flood attenuation these should be put in place as directed by the engineer.
- All storm water manholes must be regularly cleaned and inspected.
- Cargo and waste must be kept well clear of storm water manholes and catch pits at all times.

## **POLLUTION PREVENTION**

- No waste in solid, liquid or gaseous state should be discharged into the storm water system.
- Storm water runoff should be kept within the limits of standards set in terms of the relevant national and local pollution legislation and regulations.
- The wastewater reticulation system must be checked on an annual basis to ensure wastewater does not enter the storm water systems.
- No person may use any open water body or other natural water source (e.g. stream) for purposes of bathing, or the washing of clothes, machinery or vehicles.
- The Storage and handling of pollutants, fuels and hazardous substances should be done in accordance with the relevant safety and pollution control legislation.
- All potentially hazardous raw and waste materials should be handled by trained staff and stored on site in accordance with manufacturer's instructions and relevant legal requirements.
- Storage and handling areas for fuels, lubricants, chemicals and other hazardous substances should be lined to prevent accidental contamination of the soil. The integrity of the liner should remain intact.

## STORMWATER MANAGEMENT PLAN



- Open storage vessels, for example shutter lubricant drums, should be stored under cover to prevent “splash” contamination and all products dispensed from large containers should be done so with appropriate equipment, so that spillage does not take place.
- Collection containers (e.g. drip trays) should be placed under all dispensing mechanisms of hydrocarbon or hazardous liquid substances to ensure contamination from leaks and dispensing is contained. Daily checks should be conducted on stored wastes, pollutants, fuels and hazardous substances to ensure the timeous identification of faults.
- All stakeholders should develop and implement a Loss of Primary Containment (LOPC) Prevention plans in line with their industry practice.
- Material Safety Data Sheets (MSDS) for onsite chemicals, hydrocarbon materials and / or waste and hazardous substances shall be readily available. MSDS’s should include information pertaining to environmental impacts and measures to minimise and mitigate against any potential environmental impacts which may result from an incident.
- Vehicle maintenance and refueling activities must be conducted within a bunded area.
- During servicing of vehicles especially during emergency repairs, a suitable drip tray shall be used to prevent spills

## EFFLUENT MANAGEMENT

- Water falling or running into and leaving areas of potential pollution as contaminated runoff, should be directed into the effluent collection system.
- Rainwater within bunded areas for tanks should be contained and tested. The Terminal shall obtain a Coastal Wasters Discharge Permit and authorisation from TNPA before releasing water from the bund area into the bay.

### SPILLAGES

- All terminals and tenants shall comply with the regulations of the National Water Act, the Hazardous Substances Act (Act 115 of 1973), and the National Environmental Management Act.  
  
Should a pollution incident occur on site TNPA must be immediately notified and
- The responsible entity shall:
  - a. Ensure the immediate implementation of reasonable measures to contain and minimise the impacts of the incident;
  - b. Notify all persons as per legal requirements;
  - c. Undertake clean up procedures immediately;
  - d. Record the incident in the Incident Register; and
  - e. Implement measures to prevent similar incidents from occurring in the future.
- Any spillages, irrespective of their size, should be contained and cleaned up immediately.
- Technical assistance for the clean-up should be used, if required. No spills should be hosed down into a storm water drain. If spillages have soaked into the soil, then the contaminated soil should be removed and placed in designated hazardous waste skips until it can be removed to an appropriate waste disposal facility.
- The use of specialized clean-up techniques and/or products may be required depending on the spill.



### **DISCHARGE OF STORMWATER FROM SITE**

- Any storm water that is discharged from site should comply with the General Authorization limits implemented by the Department of Water and Sanitation.

### **TRAINING AND AWARENESS**

- All site staff shall be made formally aware of the contents of this SWMP and its conditions.
- All terminals and tenants shall ensure that all contractors, sub – contractors or service providers of any nature are certified as being aware of, conversant with and sufficiently trained in the performance of their duties so as to be able to apply this SWMP to all applicable aspects of their work and behavior on site.
- Training records must be regularly monitored and measures to ensure that new contractors or staff are trained or re-trained as necessary.

### **AUDITS, MONITORING AND REPORTING**

- Storm water should be monitored at sites within the Port of Durban where land based activities result in a generation and dispersion of pollutants on surfaces which could result in storm water pollution.
- Ideally, all samples of storm water must be collected within the first 20 minutes of a rainfall event
- The storm water samples must be analyzed against the general limits defined below.
- All non-conformances will be reported and investigated.

## **8. APPROVAL**

COMPILED BY:

  
\_\_\_\_\_  
Signature

1/10/2021  
\_\_\_\_\_  
Date

Name: Siraj Paruk

Designation: Environment Specialist, Port of Durban

APPROVED BY:

  
\_\_\_\_\_  
Signature

5/10/2021  
\_\_\_\_\_  
Date

Name: Nelson Mbatha

Designation: Environment Manager, Port of Durban