CONTRACTOR ENVIRONMENTAL AND SUSTAINABILITY SPECIFICATION GUIDELINES

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SUMMARY VERSION CONTROL

VERSION NO.	NATURE OF AMENDMENT	PAGE NO.	DATE REVISED
3.0	• Addition of reference documents (section 3) • Inclusion of additional definitions • Removal of DEA and replacing it with DFFE • Removal of Transnet EO and replacing with Transnet Environmental Resource (PER) • Inclusion of additional abbreviations • Inclusion of minimum environmental requirements for construction (section 5) • Inclusion of details of site inspections/audits (table 1) • Inclusion of Records Management	6-7 7-10 11 12 12-23 23 45	June 2023

Note: Only latest amendments and/or additions are reflected in italics in the body of the document.

DOCUMENTATION SIGN-OFF SHEET

I, the undersigned hereby approve this procedure.

ROLE	CAPACITY/ FUNCTION	SIGNATURE	DATE
Process Owner:	**Senior Specialist: Environmental Risk and Compliance**		01/10/2023
Accepts document for adequacy and practicability. Comments:			
Approval Committee:	**GM: Corporate Sustainability**		01/10/2023
Approves document for use. Comments:			

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1. PURPOSE

This document describes the minimum requirements for environmental management to which Contractors must comply. This document must be read in conjunction with the Transnet Construction Environmental Management Standard Operating Procedure (CEM SOP).

In this document, unless the context clearly indicates otherwise:

- Words importing any one gender shall include the other gender;
- The singular shall include the plural and vice versa; and
- Any reference in this document to legislation or subordinate legislation is to such legislation or subordinate legislation at the date of promulgation thereof and as amended and/or re-enacted from time to time.

2. APPLICABILITY

This standard applies to Contractors that work on site under the authority of Transnet SOC Ltd.

3. REFERENCE DOCUMENTS

Name	Applicable Section
Constitution of South Africa, Act 108 of 1996	Section 24
National Environmental Management Act, 107 of 1998	Section 2 National Environmental Management Principles
National Water Act, 36 of 1998	Section 164, Permissible Water Use
National Environmental Management: Waste Act, 58 of 2008	Part 1 15 (1) (i) and (2) Part 6 26 (10 (a) and (b) Schedule 3, Defined Wastes Category A: Hazardous Wastes Part 8: Contaminated Land
Environment Conservation Act, 73 of 1989	Section 20
Occupational Health and Safety Act, 85 of 1993	Asbestos Regulations, 2001

Name	Applicable Section
	Government Notice R155 in Government Gazette 23108 of February 2002 General Safety Regulations-Reg. 2 (2) PPE
GNR 326, 7 April 2017 as amended, EIA Regulations	Chapter 15, Appendix 4
Transnet Environmental Risk Management strategy and Framework	2015:42
Environmental Management Systems ISO 14001: 2015	Clause 5, 6, 7, 8, 9 and 10

4. DEFINITIONS AND ABBREVIATIONS

4.1 Definitions

Compliance — Meeting of all the organization's regulatory requirements

Conformance — The action or fact of conforming to this standard and other internal Transnet policies, procedures, guidelines and best practice.

Construction Environmental Management Standard Operating Procedure — Is a document which is used to define how environmental management will be practiced on any construction site under the management of Transnet to ensure that the environment is considered, negative impacts avoided or minimized, and positive impacts are enhanced.

Contractor — The Principal Contractor as engaged by Transnet for infrastructure construction operations, including all sub-contractors appointed by the main contractor of his own volition for the execution of parts of the construction operations; and any other contractor from time to time engaged by Transnet directly in connection with any part of the construction operations which is not a nominated sub-contractor to the Principal Contractor.

Contractor Environmental and Sustainability Specification Guidelines	A set of minimum environmental standards for all Transnet SOC Ltd-managed construction sites.
Environmental Aspect	Element of an organization's activities or products or services that interacts or can interact with the environment.
Environmental Impact	Change to the environment whether adverse or beneficial, wholly or partially resulting from an organization's environmental aspects.
Environmental Risk	The product of the likelihood and severity of an unforeseen occurrence/incident/aspect and the impact it would have, if realised, on the environment.
Fauna	A group of animals specific to a certain region or time period.
Flora	A group of plants specific to a certain region or time period.
General waste	Waste that does not pose an immediate hazard or threat to health or to the environment; and includes:- (a) domestic waste; (b) building and demolition waste; (c) business waste; (d) inert waste;
Indigenous vegetation	Plants that naturally occur in an area.
Liquid waste	Waste that appear in liquid form such as used oil, grease and/or contaminated water or waste water.

Method statement	A document that describes how the Contractor will apply environmental management measures associated with a particular activity during construction.
Monitoring	Determining the status of a system, a process or an activity
Natural Vegetation	All existing species, indigenous or otherwise, of trees, shrubs, groundcover, grasses and all other plants found growing on the site.
Responsible Authority	A Responsible Authority, according to the National Water Act 36 of 1998, relates to specific power or authority in respect of water uses that is assigned by the Minister to a Catchment Management Agency or to a Regional Office.
Rehabilitation	Refers to measures that must be put in place to restore the site to its pre-construction or enhanced state, subsequent to construction taking place.
Scope of Work	The construction work for which the Contractor has been appointed in terms of the Contract with Transnet.
Sensitive area	Any area that is denoted as sensitive by this Specification due to its particular attributes, which could include the presence of rare or endangered vegetation, the presence of heritage resources (e.g. archaeological artefact or graves), the presence of a unique natural feature, the presence of a watercourse or water body, the presence of sensitive social receptors etc. As a minimum, habitats that fall under this definition include: mountain catchments, Ramsar wetland sites, coastal shores, estuaries and endangered ecosystems.
Solid waste	All solid waste, including construction debris, chemical waste, excess cement/ concrete, wrapping materials, timber, tins and cans, drums, wire, nails, food and domestic waste (e.g. plastic packets and wrappers).

Spoil	Excavated material which is unsuitable for re-use as material in the Works or any other use; or is material which is surplus to the requirements of the Works.
Sub -Contractor	is a person or organisation who has a contract with the contractor to: Construct or install part of the contractor's work. Provide a service necessary to provide the works; or Supply plant and materials which the person or organisation has wholly or partly designed specifically for the works.
Temporary Storage	A once-off storage of waste for a period not exceeding 90 days.
Topsoil	Means a varying depth (up to 300 mm) of the soil profile irrespective of the fertility appearance, structure, agricultural potential, fertility and composition of the soil.
Waste	Any substance, material or object, that is unwanted, rejected, abandoned, discarded or disposed of, or that is intended or required to be discarded or disposed of, by the holder of that substance, material or object, whether or not such substance, material or object can be re-used, recycled or recovered and includes all wastes. Waste or a portion of waste ceases to be a waste only once the waste is, or has been re-used, recycled or recovered.
Wastewater	means water containing waste, or water that has been in contact with waste material
Watercourse	Refers to - a river or spring; a natural channel in which water flows regularly or intermittently;

	a wetland, lake or dam into which, or from which, water flows; and any collection of water gazetted by the National Water Act, 36 of 1998 as a watercourse, and a reference to a watercourse includes, where relevant, its bed and banks.
Wetland	Land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.

4.2 Abbreviations

Acronym	Meaning In Full
CEM SOP	Construction Environmental Management Standard Operating Procedure
CM	Construction Manager
CV	Curriculum Vitae
DEFF	Department of Environment, Forestry and Fisheries
EA	Environmental Authorisation
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
CESSG	Contractor Environmental and Sustainability Specification Guidelines
EO	Environmental Officer

Acronym	Meaning In Full
EMP	Environmental Management Plan
EMPr	Environmental Management Programme
EGF	Environmental Governance Framework
NEMA	National Environmental Management Act 107 of 1998
NEM:BA	National Environmental Management: Biodiversity Act 10 of 2004
NWA	National Water Act 36 of 1998
PER	Project Environmental Resource
PES	Project Environmental Specification
PM	Project Manager
SAHRA	South African Heritage Resource Agency
SDS	Safety Data Sheet
SHEQ	Safety, Health, Environment and Quality
TRANSNET	Transnet SOC Ltd

5. MINIMUM ENVIRONMENTAL REQUIREMENTS FOR CONSTRUCTION

5.1 Tender Documents

Any construction-related tender issued to the market must include:

- Transnet Integrated Management System Policy Statement;
- The Transnet Construction Environmental Management Standard Operating Procedure (CEM SOP);
- The Contractor Environmental & Sustainability Specification Guideline; and
- The Project Environmental Specification (PES).

Any construction-related tender must be recommended for issue by the Transnet Project Environmental Resource/s before it is released to the market.

5.2 Project Environmental Specification (PES)

Must incorporate all relevant recommendations of the Environmental Impact Assessment (EIA) and other environmental studies for the project and the relevant conditions of the EA and/or other applicable environmental permit(s) and licence(s), and the Transnet Operating Division's Environmental Management requirements (where applicable) into an environmental performance specification for implementation during the construction phase of the project.

The PES need not be a separate document; however it can be in a format of an appendix/addendum making reference to environmental authorisation(s), permit(s) or licence(s) applicable to the project. In cases where the project does not trigger any of the NEMA listed activities or any permit(s)/licence(s); the PES may be compiled to prescribe additional environmental management measures over and above the measures stipulated in the MERC.

5.3 Contractor's Environmental Policy

The Contractor's Environmental Policy must be signed and dated by Top Management.

The content of the Contractor's Environmental Policy must:

- be appropriate to the purpose and context of the Contractor's organization, including the nature, scale and environmental impacts of its activities, products and services;
- provide a framework for setting environmental objectives;
- include a commitment to the protection of the environment, including prevention of pollution and other specific commitment(s) relevant to the context of the Contractor's organization;
- include a commitment to fulfil compliance obligations; and
- include a commitment to continual improvement of the Contractor's environmental management system to enhance environmental performance

5.4 Contractor's Environmental Management Plan (EMP)

The Contractor's EMP must include:

- the name of the person who compiled the EMP;
- the expertise of the person who compiled the EMP, including a CV;
- a description of the Contractor's scope of work;
- a detailed description of the environmental aspects related to the Contractor's scope of work;
- a map at an appropriate scale which depicts all construction activities including associated structures, and infrastructure and environmental sensitivities affected by the construction footprint , as well as no go-areas and associated buffers;
    - The map must include the following:
    - an accurate indication of the project site position as well as the positions of the alternative sites, if any;
    - road names or numbers of all the major roads as well as the roads that provide access to the site(s)
    - a north arrow;
    - a legend;
    - the prevailing wind direction;
    - site sensitivities, including but not limited to vegetation, wetlands, watercourses, heritage sites, critical biodiversity area/s, World Heritage Site, etc. and it must be overlaid by the study area; and

- GPS co-ordinates (Indicate the position of the proposed activity with the latitude and longitude at the centre point for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should be to at least three decimal places. The projection that must be used in all cases is the WGS-84 spheroid in a national or local projection).

- a description of the impacts and risks that need to be avoided, managed and mitigated during the execution of the Contractor's scope of work including (as relevant);
    - planning and design;
    - pre-construction activities;
    - construction activities;
    - rehabilitation; and
    - operation of Transnet assets.
- a description and identification of impact management outcomes required for the identified aspects;
- a description of proposed impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated above will be achieved, and must, where applicable, include actions to:
    - avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;
    - comply with any prescribed environmental management standards or practices; and
    - comply with any applicable local, provincial and national legislation.
- the method of monitoring the implementation of the impact management actions contemplated above;
- the frequency of monitoring the implementation of the impact management actions contemplated above;
- an indication of the persons who will be responsible for the implementation of the impact management actions;
- the timeframe within which the impact management actions contemplated above must be implemented;
- the mechanism for monitoring compliance with the impact management actions contemplated above;

- a program for reporting on compliance, taking into account the requirements of this document;
- an environmental awareness plan describing the manner in which:
    - the Contractor intends to inform his employees of any environmental risk which may result from his scope of work; and
    - risks must be dealt with in order to avoid pollution or the degradation of the environment.
- any specific information that may be required by Transnet.

5.5 Contractor's Environmental Officer (EO)

The Contractor's EO should have relevant environmental qualifications and experience required for the project. The level of qualifications and experience must be in line with the complexity of the Contractor's scope of work coupled with the sensitivity of the site. The level of competency will be determined by Transnet during tender.

5.6 Management of Sub-Contractors

The Contractor must ensure that all his sub-contractors comply with this document in so far as it relates to their specific scope of work or services.

5.7 Pre-Site Access Environmental Governance

The Contractor must appoint the EO recommended in his tender proposal. Should the EO no longer be available, the Contractor must submit a CV of an alternative EO with similar or better qualifications and experience for approval by the Transnet PM and PER. The same principle will apply if the Contractor's EO is replaced for whatever reason at any stage. No construction may take place without a duly appointed Contractor's EO.

The Contractor must provide his EO with all environmental documents provided by Transnet during tender and submitted as a part of the Contractor's proposal.

The Contractor must obtain the contact details of the responsible Transnet PER and Transnet PER and provide these details to his EO.

The Contractor's EO must develop an appropriate environmental file for approval by the Transnet PER, including but not necessarily limited to (the environmental file must always be available and up to date on the construction site):

- Documents from the tender as described above.
- His CV.
- An organogram indicating reporting lines of all Contractor's staff (with names included).
- Contact Information for: the overall responsible person acting on behalf of the Contractor to execute the construction works; Contractor's Construction Manager (CM); Contractor's EO; and all relevant emergency personnel.
- A list of the Contractor's plant and equipment indicating a description of the plant/equipment, its fuel capacity, any hazardous components (oils, greases etc.), individual service/maintenance cycles and noise levels.
- A list of hazardous substances to be used during construction indicating: official substance name from Material Safety Data Sheets (MSDS)/ Safety Data Sheet (SDS); quantity on site; storage method; transport method to site; and period to be used on site. All substances listed must have MSDS/ SDS on site in the environmental file.

The MSDS/ SDS should contain the following minimum requirements:

- Section 1: Product and company name
- Section 2: Hazard identification
- Section 3: Composition/information on ingredients
- Section 4: First aid measures
- Section 5: Fire fighting measures
- Section 6: Accidental release measure
- Section 7: Handling storage
- Section 8: Exposure controls/personal protection
- Section 9: Physical and chemical properties
- Section 10: Stability and reactivity
- Section 11: Toxicological Information
- Section 12: Ecological Information
- Section 13: Disposal Consideration

- Section 14: Transportation
- Section 15: Regulatory Information
- Section 16: Other Information

- Photographic pre-construction report that details the site before any activities commence.
- Site Layout Plan indicating but not necessarily limited to,: access roads, site offices, material laydown areas, stockpile areas and parking areas, waste and effluent storage and handling facilities, entire construction footprint, no-go-areas, sewage and sanitary facilities. The plan must be appropriately drawn on a computer and must be clearly visible and properly scaled.
- A site establishment method statement (minimum requirements for method statements are described below in this document).
- Environmental Induction Material to be used to educate site staff and visitors (minimum requirements for environmental induction are described below in this document).
- An activity-based environmental risk assessment.

The Contractor's EO must submit the environmental file for acceptance to the Transnet PER.

The Contractor must obtain a Site Access Certificate from the Transnet PM before accessing the site.

5.8 Safety Data Sheets

Each hazardous substance used on site must have a valid SDS. The SDS must comply with the requirements of the Occupational Health and Safety Act, 85 of 1993.

5.9 Environmental Induction

The Contractor will ensure that all management, foremen and the general workforce, as well as all sub-contractors, suppliers and visitors to site have attended the Transnet Environmental Induction Programme prior to commencing any work on site. Where new personnel commence work on site during the construction period, the Contractor will ensure that these personnel also undergo the Transnet Environmental Induction Programme and are made aware of the environmental specifications on site.

The Contractor must ensure that all of his personnel understand the requirements of the CEM SOP; MERC; EA, EMPr, relevant permits and licences and PES as relevant to their scope of work.

5.10 Environmental Method Statements

- Environmental Method Statements as identified by the Transnet PER based on the Contractor's activity-based environmental risk assessment will be written submissions by the Contractor to the Transnet CM and PER describing:
- The proposed activity, setting out the plant, equipment, materials, labour and method the Contractor proposes using to carry out an activity;
- The environmental management of site conditions – waste management, housekeeping, site establishment etc;
- Transportation of the equipment to and from site;
- How the equipment/ material will be moved while on site;
- How and where material will be stored;
- The containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur;
- Timing and location of activities;
- Description of potential positive and negative environmental impacts and how they will be managed;
- Conformance/ non-conformance with this document and any other statutory and best practice standards;
- Monitoring and reporting requirements;
- Records Management; and
- Any other information deemed necessary by the Transnet CM and Transnet PER as well as ECO where applicable.

The Environmental Method Statements will enable the potential positive and negative environmental impacts associated with the proposed construction activity to be identified and mitigation measures put in place. All method statements must be signed by the Contractor, Transnet CM and PER, with the addition of the ECO on authorized projects, thereby indicating that the works will be carried out according to the methodology described therein.

Activities may only commence once the Environmental Method Statements have been approved by the Transnet CM, Transnet PER and ECO (where relevant). In some instances, local authorities may also need to approve the method statements. This will be highlighted in the Project Environmental Specification, where applicable.

All changes to the original Environmental Method Statements must be approved by the Transnet PER and Transnet CM prior to implementation.

To enable timely approvals, the environmental method statements will be submitted to the Transnet CM and Transnet PER for review two (2) weeks prior to the intended date of commencement of the activity, or as directed by the Transnet Project Manager/CM.

Emergency construction activity Environmental Method Statements may also be required. The activities requiring Environmental Method Statements cannot commence if they have not been approved by the CM and PER or ECO.

NOTE: No advice, approval of method statements or any other form of communication from Transnet will be construed as an acceptance by Transnet of any obligation that indemnifies the Contractor from achieving any required level of performance. Further, there is no acceptance of liability by Transnet which may result from the Contractor failing to comply with the specifications, i.e. the Contractor remains responsible for achieving the required performance levels.

5.11 Environmental Occurrences (Incidents)

The Transnet PER shall provide the Contractor with the procedure to follow in managing environmental occurrences during pre-site access governance.

The Contractor shall follow the procedure provided to him by the Transnet PER and maintain required records thereof.

In the event of an environmental occurrence, the Contractor must, as soon as is reasonably practicable:

- classify an environmental occurrence in line with the Transnet Environmental Management Occurrence process flow;

- take all reasonable measures to contain and minimise the effects of the occurrence, including its effects on the environment and any risks posed by the occurrence to the health, safety and property of persons;
- undertake cleanup procedures;
- remedy the effects of the occurrence; and
- assess the immediate and long-term effects of the occurrence on the environment and public health

5.12 Environmental Non-Conformances (Defects)

Environmental Non-Conformances shall be handled as per the terms and conditions of the Contract.

The Transnet PER shall provide the Contractor with the procedure to follow in managing environmental non-conformances during pre-site access governance.

The Contractor shall follow the procedure provided to him by the Transnet PER and maintain required records thereof.

The Transnet Project Manager shall ensure that all Non-conformances are appropriately closed out within the timeframe specified in the Non-Conformance Report.

Any environmental non-conformance will be dealt with similarly to a Defect as defined in the Contract. A defect is due to non-compliance with the Works Information and it is the responsibility of the Contractor to correct the defect in order to ensure that the work takes place in accordance with the Works Information. Similarly, non-conformance/non-compliance with any other permit or licence will be regarded as a non-conformance with the Works Information. The Contractor is responsible for rectifying any defect (non-conformance) as defined above promptly.

The Contractor's EO shall be responsible to search for and identify non-conformances with the environmental specifications at inspection intervals agreed to with the Transnet PER. The Transnet PER shall also undertake such inspections on a monthly basis. If such monthly inspections indicate that any part of the Contractor's work is non-conformant with the environmental requirements, the Transnet PER shall advise the Transnet PM to issue a Defects Notification to the Contractor accordingly. The Contractor shall correct the non-

conformance (defect) within the timeframes specified in the report and notification and submit proof of such correction to the Transnet PER.

The Transnet PER shall not recommend that a Site Closure Certificate be issued to the Contractor if any non-conformances have not been properly closed out. In such an event, the Transnet Project Manager may also make use of any reasonable contractual means to rectify the non-conformance(s) as allowed by the Contract (retention moneys etc.).

5.13 Community Grievances (Public Complaints)

The Transnet PER shall provide the Contractor with the procedure to follow in managing community grievances during pre-site access governance.

The Contractor shall follow the procedure provided to him by the Transnet PER and maintain required records thereof.

5.14 Environmental Inspections and Audits

Environmental inspections and audits may be conducted using five basic techniques:

- Interviews with Contractor's staff including Sub-contractors and suppliers;
- Document review;
- Observations;
- Monitoring; and
- Measurement and verification.

Table 1 sets out the areas and aspects of the construction site that will be inspected or audited, the frequency of such inspections/audits, the inspector/auditor and the inspected party/auditee. It should be noted that the list is not exhaustive and that each site will have specific issues that will need to be inspected/audited.

Table 1: Details on Environmental Inspections/Audits (where Transnet is the Inspected Party/Auditee, respective Contractors must give full cooperation).

Place	**Inspector/Auditor**	**Inspected Party/ Auditee**	**Inspection/audit frequency**
Construction Site	Contractor's Environmental Officer	Contractor	Daily/Weekly Inspection
Project (including all construction sites).	Transnet Project Environmental Resource/Project Environmental Manager	Contractor	Monthly Inspection
Project (including all construction sites)	Transnet Environmental Specialist: Assurance	Transnet Project Environmental Resource	As stipulated on the annual audit plan
Project (as defined in Environmental Authorisation)	Environmental Control Officer	Transnet (represented by Transnet Environmental Resource)	As stipulated in the Environmental Authorisation
Project (as defined in Water Use Authorisation)	Independent Auditor	Transnet (represented by Transnet Environmental Resource)	As stipulated in the Water Use Authorisation

The Contractor's EO will be required to conduct inspections of all work areas for which the Contractor is responsible, at intervals agreed to with the Transnet PER. Monitoring shall

be conducted as per the Contractor's approved EMP and all required records shall be maintained by the Contractor.

The Transnet PER will be required to conduct inspections of all work areas for which the Contractor is responsible on a monthly basis or at intervals agreed to with the Transnet Project Environmental Manager. Monitoring shall be conducted as per the Project Environmental Specification. The Inspection Checklist to be used shall be approved by the Transnet PER prior to each inspection.

5.15 Contractor's Environmental Performance

The Transnet PER will explain how the Contractor's performance will be scored during pre-site access governance to the Contractor's EO. The standard/minimum requirement for all environmental inspections will be 90%.

5.16 Site Planning and Establishment

The Contractor shall establish his construction camps, offices, workshops, eating areas and any other facilities on the site in a manner that does not adversely affect the environment. These facilities must not be sited in close proximity to sensitive areas; the buffer to be determined by the ecological requirements of the fauna/flora found on-site.

The site offices should not be sited in close proximity to steep areas. It is recommended that the offices, and in particular the ablution facilities, aggregate stockpiles, spoil areas and hazardous material stockpiles be located as far away as possible from any watercourse.

5.16.1 Site Layout Plan

The Site Layout Plan must as a minimum include but not limited to:

- Detailed layout of the construction works areas including access roads, site offices, material laydown areas, temporary stockpile areas and parking areas;
- Detailed locality and layout of all waste storage and handling facilities for litter, kitchen refuse and workshop-derived effluent;
- Proposed areas for the stockpiling of topsoil and excavated spoil material;
- Demarcation of the construction footprint including areas not to be disturbed by the development;

- Location of sewage and sanitary facilities at the site offices and staff accommodation at all localities where there will be a concentration of labour.

Any changes to the location of the facilities and site activities as per the approved site layout plan shall be re-submitted to the Transnet CM and Transnet PER for approval prior to implementation.

The Contractor may be required to submit a separate layout plan dealing only with his site camp. If so this will be specified in the PES.

5.16.2 Identification and Establishment of Suitable Access Routes/Roads

Existing access routes to the construction/works areas must be used as far as possible. The building of access roads must be restricted to prevent unnecessary disturbance of the surrounding environment. Access tracks must be maintained in a good condition at all times during construction to minimize erosion and dust generation.

5.16.3 Demarcation of Site Limits

Prior to the commencement of construction, the site must be clearly demarcated by means of visible barriers. Vegetation within the demarcated zone may be cleared only upon obtaining approval from the Transnet PER. No activities are allowed outside of the approved footprint on the Site Layout Plan.

5.16.4 Eating Areas

The Contractor is responsible for providing adequate eating facilities within the works area to ensure that workers do not leave the site to eat during working hours. Refuse bags/bins must be provided at all established eating areas and when full it should be disposed of appropriately.

5.16.5 Liquid Waste Management

Liquid waste water from site shall be stored on-site in a properly designed and constructed system, situated so as not to adversely affect water courses. Only domestic type wastewater, i.e. toilet, shower, basin, kitchen water shall be allowed to enter the designated system.

5.17 Sewage and Sanitation

The Contractor is responsible for providing adequate sanitary facilities including toilets, toilet paper, wash basins etc. to all workers on site and for enforcing the proper use of these facilities.

Toilet facilities shall be serviced regularly and the waste material generated from these facilities shall be disposed of at a registered waste water treatment works/macerator and relevant permits for transportation of waste and proof of servicing and disposal shall be maintained.

Toilets and latrines shall be easily accessible and shall be positioned within walking distance from wherever employees are employed on site, and away from sensitive areas. Use of open areas (i.e. the veld) is not allowed. For projects of high mobility a mobile toilet facility shall be made available by the Contractor.

Outside toilets shall be provided with locks and doors and shall be secured to prevent them from blowing over. Toilets must not be placed in areas susceptible to flooding and high winds. The Contractor shall arrange for regular emptying of toilets and shall be entirely responsible for enforcing their use and for maintaining such facilities in a clean, orderly and hygienic condition to the satisfaction of the Transnet CM.

5.18 Waste Management

Waste shall be grouped into "**general**" or "**hazardous**", depending on its characteristics. The classification shall determine handling methods and the ultimate disposal of material.

General waste which is likely to be generated on site during construction include but not limited to the following:

- Trash (waste paper, plastics, cardboard, etc.) and food waste from offices, warehouses and construction personnel;
- Uncontaminated construction debris such as used wood and scrap metal; and
- Uncontaminated soil and non-hazardous rubble from excavation or demolition.

The Contractor shall classify all waste expected to be generated during the construction period. Examples of typical construction waste which could be expected on the site and how they should be classified are indicated in the following table:

TABLE 2: EXAMPLE OF CONSTRUCTION WASTE CLASSIFICATION

Waste	Classification	
	Hazardous	**General**
Aerosol containers	**X**	
Batteries, light bulbs, circuit boards, etc.	**X**	**X**
Clean soil		**X**
Construction debris contaminated by oil or organic compounds	**X**	
Domestic waste		**X**
Empty drums (depends on prior use)	**X**	**X**
Empty paint and coating containers		**X**
Explosive waste	**X**	
PCB waste	**X**	
Rubble (not contaminated by oil or organic compounds)		**X**
Waste Cable		**X**
Waste plastic		**X**
Waste paint and/or solvent	**X**	
Waste oil	**X**	
Waste concrete		**X**
Waste cement powder	**x**	
Waste empty cement bags (must be thoroughly decanted)		**x**
Waste containing fibrous asbestos	**X**	
Waste timber		**X**
Sewerage sludge	**X**	
Scrap metal		**X**

Waste	Classification	
	Hazardous	General
Chemically-derived sanitary waste	X	

Waste will be managed in accordance with the Waste Management Hierarchy depicted in Figure 1 below:

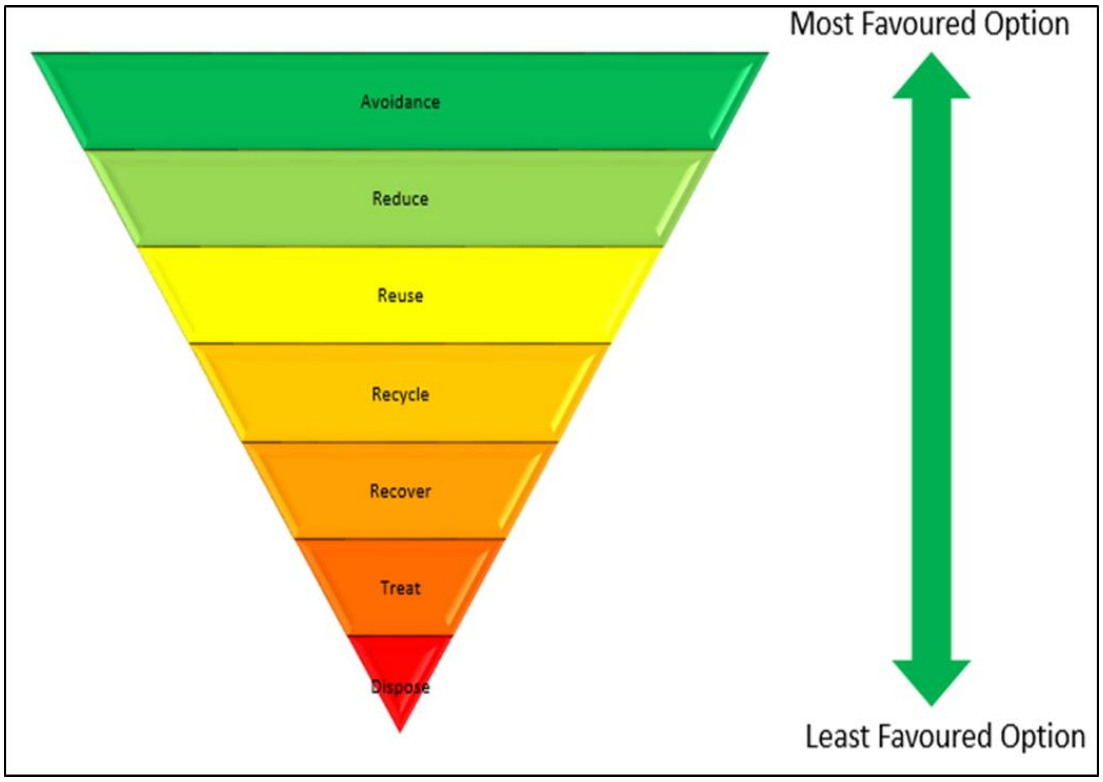


FIGURE 1: THE WASTE MANAGEMENT HIERARCHY

(Transnet Environmental Risk Management strategy and Framework, 2015:42)

1. **Avoidance/Prevention:** using goods in a manner that minimises their waste components
2. **Reduction/Minimisation:** reduction of the quantity and toxicity of waste generated during construction
3. **Re-use:** removing an article from a waste stream for use in a similar or different purpose without changing its form or properties

4. **Recycling:** separating articles from a waste stream and processing them as products or raw materials
5. **Recovery:** reclaiming particular components or materials, or using the waste as a fuel
6. **Treatment:** processing of waste by changing its form or properties in order to reduce toxicity and quantity
7. **Disposal:** burial, deposit, discharge, abandoning or release of waste

The Contractor is responsible for the removal of all waste generated from site. The Contractor shall ensure that all waste is removed to appropriate licensed waste management facilities. (For the identification of an appropriate facility, the following source may be utilized: http://sawic.environment.gov.za/).

The Contractor shall manage **GENERAL WASTE** that is anticipated to be generated by operations as follows:

- Notify waste hauler when container is full so that it can be removed and replaced with an empty container/skip;
- No littering is allowed on site. In the event where staff mobility is high, refuse bags will be made available by the Contractor;
- Provide documented evidence of proper disposal of waste (Waste Disposal Certificate)

The Contractor shall recycle **GENERAL WASTE** (as far as practically possible) that is anticipated to be generated by its operations as follows:

- Obtain and label recycling containers for the following (whichever relevant) and locate them at secure designated locations on site:
  - Office Waste;
  - Aluminium;
  - Steel;
  - Glass;
  - Ferrous Metals;

- Non Ferrous Metals; and
- Waste Timber

- Establish recycled material collection schedule;
- Arrange for full bins to be hauled away;
- Spent batteries, circuit boards, and bulbs, while non-hazardous, require separate storage, special collection and handling; and
- No burning, burying or dumping of waste of any kind will be permitted.

The Contractor shall manage **HAZARDOUS WASTE** anticipated to be generated by his operations as follows:

- Obtain and provide an acceptable container with correct and visible classification label;
- Place hazardous waste material in allocated container;
- Inspect the container on a regular basis as per the Contractor's EMP;
- Track the accumulation time for the waste, haul the full container to the registered hazardous disposal site;
- Notify the waste hauler when container is full so that it can be removed and replaced with an empty container/skip; and
- Provide documented evidence of proper waste disposal of the waste (Waste Disposal Certificate).

The Contractor shall maintain the following waste records for submission to the Transnet PER on request:

- Date of waste management activity;
- Activity Type (reuse, recycle, recover, treat, dispose);
- Description (e.g. contaminated soil, medical waste, tyres, plastic, domestic waste etc.)
- Classification (General/Hazardous);
- Estimated Quantity in kilograms
- Disposal Site Name and Reference Number (where relevant);
- Method of Transport; and
- Signed Collection or Disposal Records

5.19 Workshops, equipment maintenance and storage

All vehicles and equipment must be kept in good working order to maximise efficiency and minimise pollution. Maintenance, including washing and refueling of plant on site must be done at designated locations approved on the Site Layout Plan. The Contractor must ensure that no contamination of soil or vegetation occurs around workshops and plant maintenance facilities.

All machinery servicing areas must be bunded. Stationary plant that leak harmful substances shall not be permitted on site. Washing of equipment should be restricted to urgent maintenance requirements only. Adequate wastewater collection facilities must be provided and the wastewater should be disposed of appropriately in accordance with its waste classification.

5.20 Vehicle and Equipment Refueling

5.20.1 Stationary/Designated Refuelling

No vehicles or machines shall be serviced or refueled on site except at designated servicing or refueling locations included on the approved Site Layout Plan.

The Contractor shall provide details of his refueling activities in his EMP or Refueling Method Statement. Facility design shall comply with the regulations of the National Water Act, (Act 36 of 1998), the Hazardous Substances Act, (Act 15 of 1973), the Environmental Conservation Act, (Act 73 of 1989), National Environmental Management Act, (Act 107 of 1998), and the Occupational Health and Safety Act, (Act 85 of 1993), mainly the Construction - and Hazardous Chemical Substances Regulations.

5.20.2 Mobile Refuelling

In certain circumstances, the refueling of vehicles or equipment in a designated area is not a viable/practicable option and refueling has to be done from a tank, truck, bowser or container moved around on site. In such circumstances, the Contractor may request approval from the Transnet CM to conduct mobile refueling subject to the following control measures:

- Secondary containment equipment shall be in place. This equipment shall be sized to contain the most likely volume of fuel that could be spilt during transfer.

- Absorbent pads or drip trays are to be placed around the fuel inlet prior to dispensing.
- Mobile refueling units are to be operated by a designated competent person.
- The transfer of fuel must be stopped prior to overflowing. Fuel tanks or refueling equipment on vehicles may only be filled to 90% carrying capacity.
- Mobile fuelling equipment must be stored in areas where they are not susceptible to collisions.
- Mobile refueling operations shall not take place within 30 meters of any watercourses or 7.5 meter from other structures, property lines, public ways or combustible storage.

All mobile refueling tanks are to be properly labelled and fire extinguishers with valid service dates shall be located near the fuel storage areas. These extinguishers must be of a suitable type and size.

5.21 Spill Response

The Contractor shall have adequate spill response materials/equipment on site which must be aligned with the volumes of hazardous substances used on site and the risk of pollution to sensitive environmental features.

The Contractor shall have an approved Spill Response Plan, either in his EMP or in the form of a method statement approved by the Transnet CM and Transnet PER.

The Contractor shall instruct construction personnel on the following spill prevention and containment responsibilities:

- All plants to be inspected daily to ensure that they are in good condition;
- Immediately repair all leaks of hydrocarbons or chemicals;
- Take all reasonable measures to prevent spills or leaks;
- Do not allow sumps receiving oil or oily water to overflow;
- Prevent storm water runoff from contamination by leaking or spilled drums of oil or chemicals; and
- Do not discharge oil or contaminants into storm water or sewer systems.

If a spill occurs on land, the Contractor must:

- Immediately stop or reduce the spill;

- Contain the spill;
- Recover the spilled product;
- Remediate the site;
- Implement actions necessary to prevent the spill from contaminating groundwater or off-site surface water; and
- Manage the contaminated material in accordance with Waste Management requirements in this document.

Any spill to water has the potential to disperse quickly, therefore, the spill must be contained immediately using appropriate containment equipment.

If a spill to water occurs, the Contractor must:

- Take immediate action to stop or reduce the spill and contain it;
- Notify the appropriate on-site authorities;
- Implement actions necessary to prevent the spread of the contamination by deploying appropriate absorbent material;
- Recover the spilled product; and
- Manage the contaminated material in accordance with Waste Management requirements in this document. Water samples to be taken downstream from where the spill took place to trace the extent of pollution.

All spills must be recorded as occurrences and managed in accordance with the requirements for Occurrences in this document.

5.22 Spray Painting and Sandblasting

Spray painting and sandblasting must be kept to a minimum. All painting must, as far as practicable, be done before equipment and material is brought on site. Touch-up painting is to be done by hand painting or as per the approved EMP or Method Statement.

The relevant Contractor will inform his EO when and where spray painting or sandblasting will be carried out prior to commencement of work. The Contractor's EO will monitor these activities to ensure that adequate measures are taken to prevent contamination.

Sand may only be acquired from approved commercial sources and in instances where sand is collected from the natural surrounds, such collection must be approved by the Transnet PER.

If the area is in confined or high (elevated) areas, a protection plan must be issued for approval by the Transnet PER.

5.23 Dust Management

The usage of water for dust management will be minimized as far as practically possible. Discretion must be applied in this regard especially relating to drought conditions. Only water from approved sources may be used. Dust control measures must be approved by the Transnet PER prior to commencement of the Works.

The following minimum dust management practices must be implemented on site:

- Vehicles must be operated within speed limits, where no speed limit has been specified, the limit shall be 40km/h;
- Haulage distances must be minimized as far as reasonable practicable;
- Where water suppression is insufficient or impractical, environmentally friendly soil stabilizers must be used;
- Stockpiles and open areas that may cause dust must be stabilized and vegetated where required;
- Dust suppression measures must be implemented on inactive construction areas. (An inactive construction site is one on which construction will not occur for a month or more);
- Disturbance of natural vegetation must be minimized to reduce potential erosion, runoff, and air-borne dust;
- Material in transit must be loaded and contained within the load bin of the vehicle in such a way as to prevent any spillage or creation of dust clouds. If necessary, the load bin of the vehicle shall be covered with a tarpaulin;

5.24 Storm Water and Dewatering Management

Apart from runoff from overburden emplacements and stock piles, storm water can also be contaminated from batch plants, workshops, vehicle wash-down pads, etc., and contaminants during construction may include hydrocarbons from fuels and lubricants, sewerage from employee ablutions and excess fertilizer from rehabilitated areas, etc.

Discharges to controlled waters such as the sea, rivers, and groundwater or to sewerage systems are controlled under South African Water Legislation. The following specific measures are required:

- Temporary drainage must be established and maintained on site during the construction period until permanent drainage is in place. Secondary drainage that prevents erosion must be provided, where necessary.
- Contractors must employ good housekeeping in their areas to prevent contamination of drainage water.
- Stagnant water shall be cleared at a frequency approved by the Transnet PER.
- Any surface water flows off-site must be approved by the Transnet PER. Where necessary, silt traps shall be constructed to ensure retention of silt on site and cut-off ditches shall be constructed to ensure no runoff from the site except at points where silt traps are provided. The Contractor shall be responsible for checking and maintaining all silt traps for the duration of the project.
- The removal from groundwater is defined as a water-use under the National Water Act 36 of 1998. Therefore, it must be ensured that the project has been authorised by the Responsible Authority to remove and discharge groundwater prior to dewatering taking place. If applicable, the Contractor shall be responsible for collection, management, and containment within the site boundaries of all dewatering from all general site preparation activities.
- On-site drainage shall be accomplished in accordance with a plan approved by a suitably qualified civil engineer.

5.25 Erosion Control

Erosion control measures will be designed, implemented, and properly maintained in accordance with best management practices which will include, but not limited to the following:

- Activities must be scheduled to minimise the extent of disturbance of an area at any one time;
- Re-vegetation must be implemented as early as feasible;
- Construction traffic must be properly managed and controlled;
- Areas must be graded to the extent feasible at drainage ditches;
- Loose soil will be compacted as soon as possible after excavation, grading, or filling;
- Silt fences, geo-textiles, temporary rip-rap, soil stabilisation with gravel, diversionary berms or swales, small sedimentation basins must be used;
- The transport of sediment must be minimised;
- An erosion and sedimentation control plan must be developed, approved by the Transnet PER and communicated to staff; and
- The Contractor shall be responsible for checking and maintaining all erosion and sedimentation controls.

5.26 Noise Management

- The following specific measures are required:
- Keep all equipment in good working order;
- Operate equipment within its specification and capacity and don't overload machines;
- Apply regular maintenance, particularly with regards to lubrication;
- Operate equipment with appropriate noise abatement accessories, such as sound hoods;
- Relevant stakeholders shall be notified of any excessive noise-generating activities that could affect them;
- Ensure that the potential noise source will conform to the South African Bureau of Standards recommended code of practice, SANS 10103:2004 or the latest at the time, so that it will not produce excessive or undesirable noise when released;

- All the Contractor's equipment shall be fitted with effective exhaust silencers and shall comply with the South African Bureau of Standards recommended code of practice, SANS 10103:2004 or the latest at the time, for construction plant noise generation
- Contractor's vehicles shall comply with the Road Traffic Act, (Act 29 of 1989) when any such vehicle is operated on a public road.
- If on-site noise control is not effective, protect the victims of noise by ensuring that all noise-related occupational health provisions are met. (Occupational Health and Safety Act, (Act 85 of 1993).

5.27 Protection of Heritage Resources

5.27.1 Archaeological Sites

If an artefact on site is uncovered, work in the immediate vicinity shall be stopped immediately. The Contractor shall take reasonable precautions to prevent any person from removing or damaging any such article and shall immediately upon discovery thereof inform the Transnet CM and Transnet PER of such a discovery. The South African Heritage Resources Agency (SAHRA) or relevant Authority is to be contacted and will appoint an Archaeologist to investigate the find. Work may only resume once clearance is given in writing by the Archaeologist.

5.27.2 Graves

If a grave is uncovered on site, or discovered before the commencement of work, all work in the immediate vicinity of the grave shall be stopped and the Transnet CM and PER informed of the discovery. The South African Heritage Resources Agency (SAHRA) or relevant Authority should be contacted and in the case of graves, arrangements made for an undertaker to carry out exhumation and reburial. The undertaker will, together with the SAHRA, be responsible for attempts to contact family of the deceased and for the site where the exhumed remains can be re-interred.

5.28 Fire Prevention

Fires shall only be allowed in facilities or equipment specially constructed for this purpose.

A firebreak shall be cleared and maintained around the perimeter of the camp and office sites where and when necessary. In cases where construction is taking place in a Critical Biodiversity Area as listed under NEM:BA; it must be ensured that the requirement of a firebreak is screened against the NEMA Listing Notice 3 to confirm legislative requirements.

All conditions incorporated in the requirements of the Occupational Health and Safety Act shall be implemented.

5.29 Water Protection and Management

No water shall be abstracted from any water course (stream, river, or dam) without the expressed permission of the Transnet CM and Transnet PER. Such permission shall only be granted once it can be shown that the water is safe for use, that there is sufficient water in the resource to meet the demand, and once permission has been obtained from the Department of Water and Sanitation in accordance with the requirements of the National Water Act (Act 36 of 1998).

Water for human consumption shall be available at the site offices and at other convenient locations on site. The generally acceptable standard is that a supply of drinking water shall be available within 200m of any point on the construction site.

Method Statement(s) must be prepared by the Contractor for the various water uses. The Contractor shall keep a record of the quantities of water used on-site during construction (including use by sub-contractors), irrespective of the purpose of use.

5.30 Protection of Fauna and the collection of firewood

On no account shall any hunting or fishing activity of any kind be allowed. This includes the setting of traps, or the killing of any animal caught in construction works.

On no account shall any animal, reptile or bird of any sort be killed. This specifically includes snakes or other creatures considered potentially dangerous discovered on site. If such an animal is discovered on site, an appropriately skilled person should be summoned to remove the creature from the site. Consideration should be given to selection and nomination of such a person prior to site establishment. If no-one is available, training should be provided to at least two site staff members.

The Contractor shall provide adequate facilities for all his staff so that they are not encouraged to supplement their comforts on site by accessing what can be taken from the natural surroundings. The Contractor shall ensure that energy sources are available at all times for construction and supervision personnel for heating and cooking purposes.

5.31 Environmental Awareness Training

An Environmental Awareness Program is considered a necessary part of the Construction Environmental Management Plan for the Project. Training of the appropriate construction personnel will help ensure that all environmental regulations and requirements are followed which must be defined in the relevant Method Statement to be prepared by the Contractor.

Objectives of environmental awareness training are:

- Environmental Management – protecting the environment from the effects of construction by making personnel aware of sensitive environmental resources.
- Regulatory compliance – complying with requirements contained in project – specific permit conditions, also complying with requirements in regional and local regulations.
- Problem recognition and communication – training personnel to recognise potential environmental problems, i.e. spills, and communicate the problem to the Contractor's EO for a solution.
- Liability control - non-compliance with regulatory requirements can lead to personal and corporate liability.

All individuals on the Project construction site will need to have a minimum awareness of environmental requirements and responsibilities. However, not all need to have the same degree of awareness. The required degree of knowledge is greatest for personnel in the Safety, Health, and Environmental Sections and the least for the manual personnel.

The Contractor shall present environmental awareness programmes on a weekly/bi-monthly basis (depending on project requirements) and keep record of all the environmental related training of the personnel.

5.32 Handling and Batching of Concrete and Cement

Concrete batching shall only be conducted in demarcated areas which have been approved by the Transnet CM and Transnet PER.

Such areas shall be fitted with a containment facility for the collection of cement-laden water. This facility shall be bunded and have an impermeable surface protection so as to prevent soil and groundwater contamination. Drainage of the collection facility will be separated from any infrastructure that contains clean surface runoff.

The batching facility will not be placed in areas prone to floods or the generation of stagnant water. Access to the facility will be controlled so as to minimise potential environmental impacts. Hand mixing of cement and concrete shall be done on mortarboards and/or within the bunded area with impermeable surface or concrete slab. Bulk and bagged cement and concrete additives will be stored in an appropriate facility at least 10m away from any watercourses, gullies and drains.

Waste water collected in the containment facility shall be left to evaporate. The Contractor shall monitor water levels to prevent overflows from the facility. It is acknowledged that all waste water will evaporate; it must be ensured that the remaining water can be pumped into sealed drums for temporary storage and must be disposed of as liquid hazardous waste at an authorised hazardous waste management facility.

All concrete washing equipment, such as shovels, mixer drums, concrete chutes, etc. shall be done within the approved washout facility. Water used for washing shall be restricted as far as practically possible.

Ready-mix concrete trucks are not allowed to wash out anywhere other than in an area designated and approved by the Transnet CM and PER for this purpose.

The Contractor shall periodically clean out hardened concrete from the wash-out facility or concrete mixer, which can either be reused or disposed of as per accepted waste management procedures.

Empty cement and bags, if temporarily stored on site, must be collected and stored in weatherproof containers. Used cement bags may not be used for any other purpose and

must be disposed of on a regular basis in accordance with the Contractor's solid waste management system.

Sand and aggregates containing cement will be kept damp to prevent the generation of dust.

Concrete and cement or any solid waste materials containing concrete and cement will be disposed of at a relevant registered disposal facility and SDCs kept on the file. Where disposal facilities for general waste are utilised, written consent from the relevant municipality must be obtained by the Contractor and filed in the Green file.

5.33 Stockpiling, Soil Management and Protection of Flora

The Contractor shall measure the extent of all areas cleared for construction purposes and keep this figure updated. Sensitive areas shall be cordoned off and avoided in this regard.

Stockpiling may only take place in designated areas indicated on the approved site layout plan. Any area to be used for stockpiling or material laydown shall be stripped of all topsoil.

Clearance of vegetation shall be restricted to that which is required to facilitate the execution of the works. Vegetation clearance shall occur in a planned manner, and cleared areas shall be stabilised as soon as possible when and where necessary. The detail of vegetation clearing shall be subject to the Transnet CM's approval and shall occur in consultation with the Transnet PER.

Stockpiles must be positioned in areas sheltered from the wind and rain to prevent erosion and dispersion of loose materials. Stockpiled soil shall be protected by adequate erosion-control measures. Soil stockpiles shall be located away from drainage lines, watercourses and areas of temporary inundation. Stockpiles containing topsoil shall not exceed 2m in height unless otherwise permitted by Transnet.

Topsoil shall be stockpiled separately from other materials and prevented from movement. Excavated subsoil, where not contaminated, must be used for backfilling, if possible, and topsoil for landscaping and rehabilitation of disturbed areas. Where topsoil

has become mixed with subsoil or is not up to the original standard, fertiliser or new topsoil shall be provided by the Contractor.

No vegetation located outside the construction site shall be destroyed or damaged. As far as is reasonably practicable, existing roads must be used for access to the site. Before site clearance takes place, vegetation surveys must be conducted and protected species identified.

No protected plant species shall be removed without written consent from the relevant authorities. The development of new embankments or fill areas must be undertaken in consultation with the Transnet PER.

No dumping of solid waste or refuse shall be allowed within or adjacent to areas of natural vegetation.

The Contractor shall identify and eradicate all declared alien and invasive plant species occurring on site.

5.34 Traffic Management

Vehicles usage is permitted only on access roads. Vehicles should only be parked within designated parking areas as demarcated on the site layout plan.

Turning of vehicles should only take place within a clearly demarcated "turn area" located within the approved construction footprint.

The Contractor must co-ordinate the loading and offloading of material during the construction phase so as to ensure that vehicular movement is in one direction only at any one time and that side-tracks are not created on the site.

5.35 Transportation of Materials

The Contractor is responsible for ensuring that all suppliers and delivery drivers are aware of procedures and restrictions (e.g. no-go areas) in terms of the SOP CM and this Specification. Material must be appropriately secured to ensure safe passage between destinations during transportation. Loads must have appropriate cover, where ADTs are not utilised, to prevent spillage from the vehicles. The Contractor will be held responsible for any clean-up resulting from the failure to properly secure transported materials.

5.36 Borrow Pits and Quarries

The Contractor shall ensure that suppliers of rock and sand raw materials are in possession of the required permit/license and keep record of the quantity of material supplied.

The Contractor will not make direct use of any borrow pits and quarries unless the borrow pit has a valid permit, he has obtained written approval from the Transnet CM and Method Statement has been submitted and approved. The Method Statement will provide the detailed description of the location of the borrow pits and/or quarries and the procedures that will be followed to adhere to any pertinent national or local legislation (e.g. mineral extraction, rehabilitation, safety and noise levels).

5.37 Social and Labour Issues

The criteria for and selection of labourers, sub-contractors and suppliers for the project shall demonstrate preference for the local community and shall be aligned with the criteria set by Transnet SOC Ltd in appointing the Contractor. The Contractor shall keep records of the identity of all staff.

Under no circumstances shall the Contractors engage in formal discussions with landowners without prior consent by the Transnet CM.

No activity on private property shall be allowed without written consent by the relevant landowner and Transnet CM/Transnet PER.

Any damage to private property caused by the Contractor during the construction period, shall be repaired to the satisfaction of the Transnet CM, the Transnet PER and the land-owner.

The Contractor shall keep record of any complaint raised during the construction period relating to the Contractor's activities.

No job-seekers shall be allowed on site and signs reflecting such shall be displayed on the notice boards.

5.38 Energy Management

The Contractor shall measure and keep updated records of the following:

- Electricity consumption (to be measured in Kilowatt Hours)
- Fuel consumption (to be measured in liters)

5.39 Handling, Storage and Management of Hazardous Substances

All hazardous materials/substances shall be stored in a secured, designated area that is fenced, bunded and has restricted entry.

All storage shall take place using suitable containers to the approval of the Transnet CM and PER.

All hazardous liquids shall be located in a secure, demarcated area and an adequate bund wall (110% of the total volume stored) shall be provided. The floor and wall of the bund area shall be impervious to prevent infiltration of any spilled/leaked liquids into the soil.

No spillages or accumulated stormwater within this bunded area will be allowed to be flushed from the bund into the surrounding area.

Hazard signs indicating the nature and volume of the stored materials shall be displayed on the storage facility or containment structure.

Weigh bills of hazardous substances shall be sourced from suppliers and kept on site for inspection by the Transnet PER.

The Contractor must provide a method statement detailing the hazardous substances that are to be used during construction, as well as the storage, handling and disposal procedures for each substance. Emergency procedures in the event of misuse or spillage that might negatively affect the environment must be specified.

Information on each hazardous substance will be available to all persons on site in the form of MSDS/SDS. Training and education about the proper use, handling, and disposal of the material will be provided to all workers handling the material.

The Contractor's EO must be informed of all activities that involve the use of hazardous substances to facilitate prompt response in the event of a spill or release.

5.40 Housekeeping

The Contractor must ensure proper housekeeping of the site for the duration of the project. If practical the contractor shall amongst construction personnel, assign one to be responsible for good housekeeping

Materials shall be stored in a neat and tidy manner in designated areas as per the approved site layout plan.

5.41 Rehabilitation

Contractors shall rehabilitate the entire site upon completion of work. Where applicable, rehabilitation must be in line with the measures outlined in the Project Environmental Specification. A rehabilitation plan will be submitted to the Transnet CM and PER for approval at least six weeks before project completion. The following, but not limited are critical issues to be included in the rehabilitation plan:

- Details of soil preparation procedures including proposed fertilisers or other chemicals being considered for use;
- A list of the plant species that will be used in the rehabilitation process. Note that these should all be indigenous species, and preferably species that are endemic to the area. The assistance of an appropriately qualified Botanist/Horticulturist should be sought in developing this list;
- Procedures for watering the planted areas (frequency of watering, methodology proposed etc.);
- An indication of the monitoring procedures that will be put in place to ensure the successful establishment of the plants (duration and frequency of monitoring, proposed criteria for declaring rehabilitation as being successful); and
- Procedures for the prevention of the establishment and spread of alien invasive species.

5.42 Documentation and Records Management

The Contractor's EO will complete and maintain copies of all documents and records and ensure that these documents and records are kept up to date.

The Contractor's EO will submit these documents to the Transnet PER on a frequency as agreed to with the Transnet PER, except where documents have remained unchanged in which case written notification to this effect must be provided to the Transnet PER. The Contractor's EO must ensure that electronic copies of these documents are saved on the Transnet system.

Once the construction activities have been completed and the Transnet PER has conducted a site closure inspection and notified the Contractor that site closure will be granted, all documents described above must be handed over to Transnet after which a Site Closure Certificate will be issued by the Transnet Project Manager.

NOTE: All documents/records are to be retained, within the Transnet Document Control System, for a period of 10 years. In the event of environmental documentation/record being lost before receiving a Site Closure Certificate, the Contractor will be penalised according to the specifications laid down in the Contract.

6. RECORDS

Refer to CEM SOP.

7. ANNEXURES

None.

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PROGRAMME

FOR THE

PORT OF NGQURA

Table of Contents

1. Purpose

This document describes the main environmental management requirements that Contractors must comply with during construction to ensure that the environment is considered, negative impacts avoided or minimised, and positive impacts enhanced. The Construction Environmental Management Programme (CEMPr) addresses requirements of the Records of Decision (RoD) / Environmental Authorisations (EA) relevant to the Construction and Operation of the Port of Ngqura (Ref A24/16/3/56) and Construction of the Port Extensions (Ref 12/12/20/690) that apply to the construction phases of the authorised projects. This document is critical to the main Contractor and the Contractor's Environmental Officer (EO) as well as any sub-contractors reporting to the main Contractor.

The purpose of this Document is to:

- Describe how project environmental risks will be managed during the construction phase;
- Detail the roles and responsibilities of all parties with respect to environmental management during construction;
- Outline the organisational structure for effective implementation of the CEMPr;
- Assist the Contractor in understanding the requirements of complying with the CEMPr and any relevant specifications; and
- Provide a set of standards for environmental during the construction phase.

2. Scope

This standard applies to Contractors that work on site under the authority of Transnet.

3. Abbreviations/Definitions

CEMP	Construction Environmental Management Plan. Construction EMP including Standard Environmental Specification (SES) and Project Environmental Specification (PES).
Compliance	The act or fact of complying with legislation
Conformance	The act in accordance with this standard and other internal policies, procedures guidelines or best practice
Contractor	The **Principal Contractor** as engaged by Transnet for infrastructure construction operations, including all sub-contractors appointed by the main contractor of his own volition for the execution of parts of the construction operations; and any other contractor from time to time engaged by Transnet directly in connection with any part

	of the construction operations which is not a nominated sub-contractor to the Principal Contractor.
Contractor's Environmental Officer	Contractor's Environmental Officer responsible for ensuring compliance with the CEMPr on a daily basis.
Corrective Action	It is generally a reactive process used to address problems after they have occurred. Corrective action may be triggered by a variety of events, eg. Non-conformance to documented procedures and work instructions, non-conformances raised through internal audits, unacceptable monitoring and measurement results, internal & external SHEQ complaints, etc.
DFFE	Department of Forestry, Fisheries and Environment
ECO	Environmental Control Officer (ECO). Independent or internal environmental specialist who monitors compliance with the EA as required.
Emergency	Sudden unforeseen event needing immediate or prompt action.
Environment	Surroundings in which the Contractor operates, including air, water, land, natural resources, flora, fauna, humans and their interrelations.
Environmental Aspect	Element of a Contractor's activities, products or services that can interact with the environment and cause an environmental impact (e.g. dust, noise etc.).
Environmental Authorisation (EA)	Environmental Authorisation is the authorisation granted by a competent authority of a listed activity or specified activity in terms of NEMA, and includes a similar authorisation contemplated in a specific environmental management Act
Environmental Impact	Any change to the environment, whether adverse or beneficial, wholly or partially resulting from a Contractor's activities, products or services.
Environmental Management Plan (EMP)	A plan generated by the Contractor describing the relevant roles and responsibilities and how potential environmental risks will be assessed and managed including the monitoring and recording thereof.

Environmental Management Programme (EMPr)	A programme that has been approved by the Competent Authority in terms of NEMA, 107 of 1998 stipulating information on any proposed management, mitigation, protection or remedial measures that will be undertaken to address the environmental impacts that have been identified
Environmental Risk	The product of the likelihood and severity of an unforeseen occurrence/incident/aspect and the impact it would have, if realised, on the environment
Incident/Occurrence	An undesired event occurring at work that results in physical harm to a person or death, or damage to the environment, plant and/or equipment, and/or loss of production.
NEMA	National Environmental Management Act, 107 of 1998 (as amended)
Non-conformance	An action or situation that does not conform to Transnet SHEQ standards, procedures or legislative requirement(s) and that can be, or lead to, an unacceptable SHEQ incident.
Transnet Project Manager	Means the overall project manager responsible for implementation of the project.
Transnet Environmental Manager	Works together with the Project Manager and Construction Manager to ensure that the requirements of the CEMPr are met
Transnet Construction Manager	Works together with the Project Manager to ensure that construction proceeds in accordance with the relevant specifications and agreed schedule.
Transnet Environmental Officer	Responsible for ensuring that the CEMPr is implemented by the project/construction team and Contractors and their Sub-contractors.

4. Overview of the Construction Environmental Management Programme

It is the stated goal of Transnet to implement sustainable environmental management practices within the organisation. This will apply to the planning, design, construction, operation, restoration, reuse and decommissioning activities related to all infrastructure development, upgrade and maintenance.

The CEMPr is the tool used to ensure this goal is achieved during construction and commissioning phases at the Port of Ngqura.

The CEMPr has been developed in line with the requirements of all relevant South African Environmental Legislation, Port of Ngqura Environmental Authorisations and Requirements and Standards of Best Practice.

5. Composition of the CEMPr

The CEMPr will form an integral part of all contracts with Contractors. The CEMPr and associated documents or specifications as well as the relevant Environmental Authorisations will be included in the Tender Documents issued to prospective Contractors. The Contractors will incorporate all requirements set out in this Document in their submissions to Transnet.

There are two types of environmental specifications that have been incorporated into this CEMPr:

Standard Environmental Specification that describes the minimum standards for environmental management for a range of environmental aspects associated with all construction projects with which the Contractor must comply.

Project Environmental Specification that describes standards specific to projects within the Port of Ngqura which include conditions and requirements of the Port Environmental Authorisations and Practices.

The specifications are configured as performance specifications to ensure that Transnet and any entities that enter into formal agreements with Transnet viz. Consultants, Contractors and Sub-contractors, achieve the required level of environmental performance.

NOTE: No advice, approval of method statements or any other form of communication from Transnet will be construed as an acceptance by Transnet of any obligation that indemnifies the Contractor from achieving any required level of performance. Further, there is no acceptance of liability by Transnet which may result from the Contractor failing to comply with the specifications, i.e. the Contractor remains responsible for achieving the required performance levels.

6. Approval Status of CEMPr

The CEMPr was reviewed and approved by the relevant environmental authorities in terms of the requirements of the Records of Decision for the Construction and Operation of the Port of Ngqura dated 27 May 2002 and Construction of the Port Extensions dated 02 August 2007, and as such becomes a legal document that must be complied with. This approved CEMPr shall be issued to all relevant parties for implementation during construction within the Port of Ngqura.

7. CEMPr Management and Organisational Structure

7.1 Contractual Obligations

The CEMPr will form part of all tender documentation and will be made legally binding on all contractors, consultants and service providers working on projects through inclusion in contractual documentation and signing of the Declaration of Understanding. This will ensure that the obligations are clearly communicated to contractors and that submitted tenders have taken into account, and budgeted for the environmental requirements specified. Obligations imposed by this document are legally binding in terms of the Port of Ngqura Environmental Authorisations.

7.2 Organisational Structure

Transnet will specify the required management structure for the administration and implementation of the CEMPr, with particular emphasis on the roles and responsibilities of key individuals or groups. The organisational structure identifies and defines the responsibilities and authority of the various entities involved in projects within the Port of Ngqura. All instructions and official communications regarding environmental matters will follow the organisational structure as indicated in Figure 1. below. All instructions that relate to the implementation of the CEMPr will be given to the Contractor by the Transnet Project Manager. Where uncertainty relating to the requirements of the CEMPr exists, the Transnet Project Manager will consult with the Project Environmental Manager.

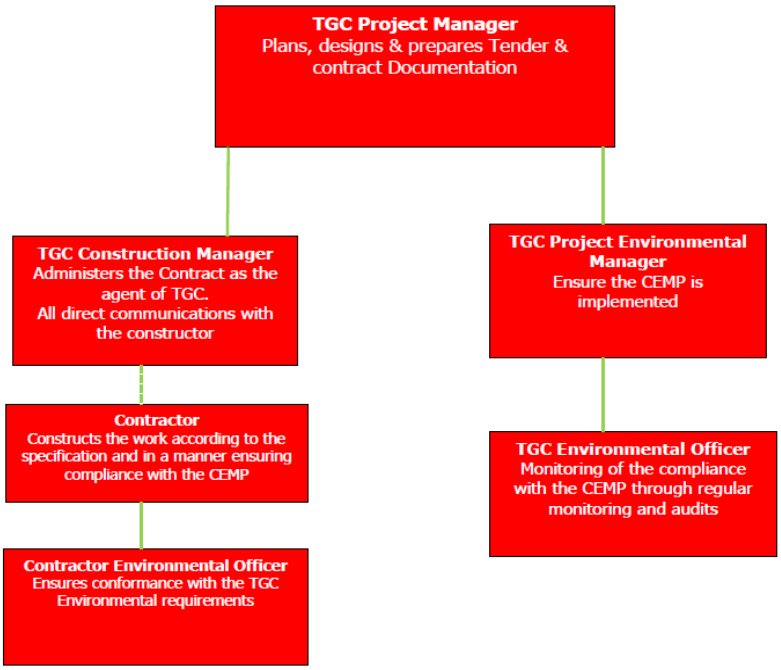


Figure 1: Typical Organogram for Construction

7.3 Roles and Responsibilities

Transnet SOC Ltd is the Developer and has overall responsibility for ensuring that construction and development is undertaken in an environmentally sound and responsible manner, and in particular, reflects the requirements and specifications of the CEMPr and recommendations from the relevant authorities. The roles and responsibilities of all role players are presented below.

7.3.1 Transnet (Employer)

The Employer will be responsible for overall environmental control on the project site during the construction and rehabilitation phases. The Employer's responsibilities will include:

- Appointing an independent ECO for the duration of the Contract;
- Appointment of required environmental specialists in terms of the requirements of the Environmental Authorisation;
- Obtaining necessary approvals of plans, designs and documentation as required by the Environmental Authorisation;
- Being fully familiar with the content of the Environmental Authorisation and CEMPr;
- Notifying the DFFE of changes in the developments that result in significant environmental impacts;
- Notifications to DFFE in terms of the requirements of the Environmental Authorisation and relevant environmental legislation (where required);
- The overall implementation of the EMPr;
- Ensuring compliance, by all parties, and the imposition of penalties for non-compliance through the Transnet Project Manager and ECO;
- Implementing corrective and preventive actions, where required;
- Preventing pollution and actions that will harm or may cause harm to the environment.

7.3.2 Transnet Project Manager

The Transnet Project Manager will be responsible for environmental management throughout the design and construction phases of the project and will report directly to the Employer (or its appointed representative).

The PM's responsibilities in terms of this CEMPr will include the following:

- Be familiar with the contents of the Environmental Management Plans and Specifications, and his role and responsibilities as defined therein.
- Communicate to the Contractor, verbally and in writing, the advice of the Transnet Environmental Manager and / or ECO and the outcome and recommendations of the ECO reports.

- Review and approve drawings produced by the Engineer, Contractor or professional team in connection with any aspect of the proposed project.
- Issue site instructions giving effect to the ECO recommendations and requirements where necessary.
- Review complaints received and make instructions as necessary.
- Discuss with the Environmental team the application of penalties for the infringement of the CEMPr, and other possible enforcement measures when necessary.
- Issue penalties as and when necessary.
- Implement Temporary Work Stoppages as advised by the Environmental Manager and / or the ECO, where serious environmental infringements and non-compliances continue to occur.
- Facilitate proactive communication between all role-players in the interests of effective environmental management.
- Ensuring conditions of the environmental authorisation are complied with.
- While the PM retains the responsibility for the overall implementation of the project, he may delegate certain of his functions to the Transnet Environmental Manager to ensure that requirements of the Environmental Authorisation are met.

7.3.3 Transnet Construction Manager

The Transnet Construction Manager is responsible for ensuring the implementation of the CEMPr; and reports to the Transnet Project Manager. The Transnet Construction Manager is supported by the Transnet Project Environmental Manager.

The specific environmental tasks during the construction phase will include:

- Reviewing the monthly reports compiled by the Transnet Environmental Officer;
- Communicating directly with the Contractors;
- Issuing non-conformance notification to Contractors that do not comply with the requirements of the EMPr and associated requirements or documents, including EA, permits and licenses.

7.3.4 Transnet Project Environmental Manager

The Transnet Project Environmental Manager will be responsible for ensuring that the CEMPr and associated specifications or requirements are complied with during construction.

The Transnet Project Environmental Manager will report functionally to the Transnet Environmental Manager: Governance and Compliance and relevant Project Manager.

The specific tasks during the construction stage will include:

- Liaison with the authorities.
- Tender evaluation, development of environmental criteria and adjudication thereof.
- Review all reports from the Environmental Specialist/Officer, including sign off on Method Statements.
- Conduct any environmental incident enquiries.

- Identify, with support from the Transnet Construction Manager, the need for corrective or remedial measures with regard to proposed works.
- Ensure induction material includes project appropriate environmental issues.
- Approve training programmes and other awareness initiatives.
- Coordinate or facilitate internal environmental audits.
- Prepare environmental monitoring protocols (if monitoring to be done by Environmental Specialist and not an outside consultant).

The Transnet Project Environmental Manager may delegate part or all of these responsibilities to the Transnet Environmental Officer, based on the merits of the particular project at hand.

7.3.5 Transnet Environmental Officer

The Transnet Environmental Officer reports functionally to the Transnet Construction Manager and Transnet Project Environmental Manager and is responsible for conducting the tasks required to ensure that the EMPr including permits and licenses are implemented on the construction site.

The Transnet Environmental Officer will conduct the following tasks:

- Ensure that environmental issues receive adequate attention in the site induction training.
- Prepare and conduct awareness training (e.g. posters, tool box talks and signage).
- Monitor the Contractor's compliance with the EA, EMP, EMPr and any permits and licences on site.
- Conduct monthly observations, inspections and environmental audits of all Contractor's and work areas.
- Ensure that all environmental monitoring programmes (sampling, measuring, recording etc. when specified) are carried out according to protocols and schedules.
- Measurement of completed work (e.g. areas topsoiled, re-vegetated, stabilised etc.).
- Maintain site documentation related to environmental management (permits, EMPr, method statements, EA, reports, audits, monitoring results, receipts for waste removal etc.). Documentation to be maintained on the relevant site Document Control System.
- Attendance at scheduled SHE meetings and project coordination meetings.
- Inspect and report on environmental incidents and check corrective action.
- Keep a regular photographic record of all environmental incidents.
- Implementation of environmental-related actions arising out of the minutes from scheduled meetings.
- Management of complaints register.
- Review and Sign off Method Statements prepared by Contractor's.
- Audit Environmental Method Statements.

- Collate information received, including monitoring results into a monthly report to the Construction Manager showing progress against targets.
- The compilation of the Project Environmental Management File.

The key deliverables will include the compilation of:

- Project Start Up Checklist
- Monthly inspection/environmental audit report
- Monitoring results
- Site close-out reports
- Incident reports
- Environmental Incident Register
- Environmental Non-Conformance Register
- Complaints Register
- Method Statements Register
- Hazardous Substances Register
- Site Close Out Inspection

Furthermore, the Transnet Environmental Officer will be required to compile a photographic record of all activities on site prior to construction related activities starting, during the construction process and on completion of construction related works. This will include photographs for:

- Monthly environmental audit reports;
- Corrective action;
- Progress of environmental works; and
- Non-conformance reports.

7.3.6 The Contractor

The Contractor will comply with the requirements of the CEMPr and abide by the Transnet Construction Manager's instructions regarding the implementation of the CEMPr. The Declaration of Understanding, as detailed in this document, must be signed, and a signed copy must be submitted to the Transnet Construction Manager prior to the start of construction.

The Contractor must provide a Responsibility Matrix and Organogram which must be approved by the Transnet Project Manager and Transnet Environmental Officer. This document must be updated on a regular basis to ensure that information is correct.

7.3.7 Contractor Environmental Officer

The Contractor will appoint a suitably qualified and experienced Environmental Officer that must be dedicated to the implementation of the CEMPr for the duration of their works on site. The Environmental Officer may not be a shared resource with other disciplines on site.

The Contractor will submit the name and CV of the Environmental Officer as well as an Environmental Management Plan detailing roles and responsibilities with their tender submission. This will be for Transnet's approval and no work will be permitted to commence on site if this has not been done.

Should the Contractor's Environmental Officer change from that person identified during either tender stage, or construction period, the Contractor will submit a CV of a replacement Environmental Officer for approval by the Transnet Environmental Officer and Construction Manager. No work can proceed until the replacement Environmental Officer has been approved.

The Contractor's Environmental Plan will include, but not be limited to:

- Description of environmental management responsibilities of the Contractor's Project Manager, Contractor's Site Manager and the Contractor's Environmental Officer;
- Organisational Environmental Policy;
- Environmental Method Statements.

The Contractor's Environmental Officer will liaise with the Transnet Environmental Officer on site. It will be the responsibility of the Contractor's Environmental Officer to ensure that all work is conducted according to approved Environmental Method Statements and that the roles and responsibilities as set out in this document are fulfilled. The Contractor's Environmental Officer tasks will include:

- Daily or weekly or monthly inspections of the work area(s) as per schedule or authorised through written instruction by the Transnet PEM or Environmental Officer;
- Prepare activity/aspect based Environmental Method Statements;
- Identify local, provincial and national environmental legislation that applies to the Contractor's activities;
- Monitor compliance with the EMPr and Environmental Method Statements;
- Ongoing Environmental Awareness Training of the Contractor's site personnel;
- Reporting, investigating and recording of any environmental incidents caused by the Contractor or due to the Contractor's activities, including their sub-contractors;
- Close out of environmental incidents;
- Attendance at all SHE meetings and induction programmes, and toolbox talks where possible;
- Waste Management;
- Ensure that environmental signage and barriers are correctly placed;
- Taking required corrective action within specified time frame;

- The Contractor's Environmental Officer will be expected to submit daily and/or weekly (whichever is practical based on the nature of the works on site) and monthly checklists to the Transnet Environmental Officer.

7.3.8 Environmental Monitoring Committee

The Environmental Authorization for the project requires Transnet to participate in the current constituted Coega Environmental Monitoring Committee (EMC). The EMC was initially established as a requirement of the Records of Decision (RoD) issued by National DFFE in 2002 and 2007 respectively for the construction and operation of the Port of Ngqura and proposed port extensions as well as for the establishment of the Coega Industrial Development Zone.

The EMC is responsible for continual monitoring of the Developers' compliance with the conditions of the various RoD's, Environmental Authorisations and requirements of Environmental management Programmes applicable to the construction, operation and decommissioning phases of authorised projects in the Coega IDZ and Port of Ngqura.

Its mandate is to monitor construction and operational activities within the entire IDZ and Port of Ngqura to ensure that they take place in an environmentally responsible manner, in accordance with sound environmental management practices and utilizing, where possible, current best practicable environmental options.

The committee consists of *inter alia* representatives from regulatory authorities, the Developers (Coega Development Corporation (CDC), Transnet SOC Ltd), Environmental Non-Governmental Organizations, SANParks, Algoa Bay Users, Civil Society and Affected Communities.

The EMC may:

- At their discretion, undertake periodic reviews on site to ensure that Transnet and their appointed contractors are implementing appropriate measures and monitoring related to implementation of the procedures and specifications contained in this document; and
- As representatives of government, require Transnet and CDC to make changes as necessary to environmental practices or order the suspension of all, or part of the work, should they believe that it is in the interests of the development zone/environment to do so.

The EMC through its' Terms of Reference (ToR) is mandated to select, after which CDC and Transnet shall appoint, a suitably-qualified independent person as Environmental Control Officer, who shall hold office for such period as determined by the EMC.

The EMC shall meet on a quarterly basis from the inception of the project and shall report to the National DFFE.

7.3.9 Coega/Ngqura Independent Environmental Control Officer

Transnet is required in terms of the Environmental Authorisation for the project to appoint a suitably qualified independent Environmental Control Officer. Appointment of an ECO will be done in line with the requirements of the EMC ToR.

The ECO is accountable to the EMC and reports to the EMC or to the Chairperson acting on behalf of the EMC. The ECO's primary function is to conduct compliance monitoring and auditing activities on behalf of the EMC, as outlined in the project Environmental Authorisation and/or as directed by the EMC or the Chairperson on behalf of the EMC. The ECO's functions include:

- Monitoring and reporting on environmental management of the project;
- Ensuring compliance with authorisation conditions, requirements of the CEMPr and relevant environmental legislation;
- Conducting regular site inspections and periodic environmental audits;
- Conducting bi-annual audits and presenting audit reports to the EMC;
- Providing quarterly environmental compliance reports to the EMC, copied to the relevant DFFE Directorate;
- Providing secretariat services to the EMC as outlined in the EMC ToR; and
- Complying with directions of or any duties assigned by the EMC or the EMC Chairperson.

The ECO is responsible for providing an independent evaluation of compliance with the CEMPr and not for enforcement of conditions of the CEMPr. Transnet is responsible for enforcement of the conditions of the EMPr. The ECO will be responsible for maintaining the following on site:

- A site diary of site visits and audits;
- An activity schedule for project implementation as supplied by Transnet;
- A copy of the Environmental Authorisation and all other relevant permits and licenses, for reference purposes;
- A non-conformance register;
- A public complaints register;
- Copy of audits undertaken by the ECO.

The ECO in terms of this CEMPr will remain employed for the full duration of construction until all snag items have been resolved, rehabilitation measures have been completed, and the site is handed over for Operation, thereby indicting the start of the operational phase.

The ECO will compile and submit a compliance audit report to the National DFFE upon final completion of construction related activities (within 30 days of site hand-over) and within 30 days of the completion of rehabilitation activities in accordance with the requirements of the project environmental authorisation.

8. Implementation of CEMPr

8.1 Availability of the CEMPr

Copies of this CEMPr and related environmental management requirements including relevant Environmental Method Statements must be available at the contractor site offices and / or works areas at all times during the construction phase of the project. The contractor must ensure that all personnel working on site including sub-contractors and their staff are familiar with and understand the requirements of the CEMPr and method statements.

8.2 Project Environmental Management Plan

The Contractor is required to submit an Environmental Management Plan (EMP) with his Tender Documents. The EMP should describe the relevant roles and responsibilities and how potential environmental risks will be assessed and managed including the monitoring and recording thereof. These will be used to establish a Contractor's competency and experience of preventing and managing potential environmental impacts.

8.3 Environmental Method Statements

Method statements are written submissions by the Contractor to the Transnet Construction manager and Environmental Officer in response to the requirements of this CEMPr. Construction activities may not commence prior to approval of the method statements.

Environmental Method Statements must as a minimum describe:

- The proposed activity, setting out the plant, equipment, material, labour and method the contractor propose using to carry out an activity;
- Transportation of staff and equipment to and from site;
- How equipment and material will be transported while on site;
- How and where equipment and material will be stored;
- The containment of leaks or spills of any liquid or material that may occur, including actions to be taken is containment is not possible;
- Timing and location of activity;
- Description of potential positive and negative environmental impacts and how they will be managed;
- Compliance/non-compliance with the requirements of this CEMPr and any other statutory and best practice standards;
- Monitoring and reporting requirements;
- Any other information deemed necessary by the Transnet Construction Manager.

The contractor will compile Activity/Aspect based Environmental Method Statements for all activities proposed. The Environmental Method Statement will enable the potential Positive and negative environmental impacts associated with the proposed construction activities to be identified and mitigation measures put in place. All method statements must be signed by the

contractor thereby indicating that the works will be carried out according to the methodology described therein.

Activities may only commence once the Environmental Method Statements have been approved by the Transnet Construction Manager and Environmental Officer. Any changes to the original Method Statements must be approved by the Transnet Construction Manager and Environmental Officer prior to implementation. The Contractor will also be required to re-sign the amended Environmental Method Statement.

To enable timely approvals, the Environmental Method Statements must be submitted to the Transnet Construction Manager and Environmental Officer for review two weeks prior to the intended date of commencement of the activity, or as directed by the Transnet Construction manager.

Where changes to the work methodology are proposed, Environmental Method Statements must be amended accordingly and signed off by all relevant parties as indicated above. This Environmental Method Statements MUST contain sufficient information and detail to enable the Transnet Construction Manager and/or Environmental Officer to apply their minds to the potential impacts of the works on the environment. The Contractor will also need to thoroughly understand what is required of him/her in order to undertake the works.

An approved method statement will not absolve the Contractor from any of his obligations or responsibilities in terms of the contract. However, any damage caused to the environment through activities undertaken without an approved method statement will be rehabilitated at the contractor's cost.

8.4 Environmental Awareness Training

All project staff (including contractors) will be required to undergo project specific environmental awareness training and training regarding roles and responsibilities in terms of the implementation of and compliance with the CEMPr. The awareness training will ensure that all parties understand their obligation to exercise due diligence for environmental matters.

The environmental awareness training programmes should focus on the various levels of employment. Environmental awareness training programmes need to be formulated for these levels and records of such must comprise:

- A record of all names, positions and duties of staff who received training;
- A summarised version of the training material.

Environmental Awareness Training programmes must be initiated prior to commencement of project related activities. Awareness training must amongst others include but not be limited to:

- Significant actual or potential impacts associated with the project and the importance of mitigation.
- Location of environmental sensitive receptors and areas of high environmental value.
- Conditions and requirements of the project Environmental Authorisation.
- Importance and relevance of the CEMPr.

- Roles and responsibilities in relation to compliance with the project Environmental Authorisation and CEMPr.
- Familiarisation with site environmental controls.
- Spill response and emergency procedures.
- Hazard and risk management to ensure personnel understand the potential impacts and proposed mitigation measures.
- Accident, incident, spill reporting and methods for prevention.
- Complaints management procedures.
- Environmental Monitoring.

The Transnet Environmental Officer may be required to provide additional training on-site regarding environmental aspects that are unclear to the construction personnel. The Contractor will implement training programmes at own cost.

In addition to the above, the Contractor will be required to train relevant personnel in various emergency incident situations. These persons must be provided with basic emergency response equipment. Alternatively, the Contractor will appoint relevant Preferred Service Providers (PSP's) to fulfil these roles and responsibilities. It is a requirement for the Contractor to make contact with the local emergency response teams and include these in all emergency planning and procedures.

All staff working with hazardous products must receive specialist training. This training must, as a minimum, deal with the following:

- Handling of dangerous/hazardous materials.
- Safe storage of such goods.
- The use of Material Safety Data Sheets.

The response and on-site teams must be provided with the following to effectively manage all environmental, health & safety incidents:

- Up-to-date emergency response plan.
- Material Safety Data Sheets of all materials stored on site.
- Spill kits.
- Adequate fire-fighting equipment.
- Personal Protective Equipment (PPE).

8.5 Recording and Reporting of Environmental Incidents

Transnet implements a procedure for the recording and reporting of environmental incidents which forms part of the implementation of this CEMPr. Where environmental incidents are identified, appropriate action shall be taken to minimize the impacts associated with the incident. Corrective actions must be implemented and an assessment done to determine whether preventive actions can be implemented to prevent similar incidents from occurring.

All environmental incidents shall be reported as soon as possible and must be followed by a corrective action report that outlines the corrective actions implemented and the timeframe in which it was implemented.

8.5.1 Classification of Environmental Incidents

An environmental incident is classified under four levels: 1, 2, 3 and 4. These levels are defined as follows:

Level 1 Environmental Incident
An incident or sequel of incidents, whether immediate or delayed, that results or has the potential to result in:

- A significant impact on the physical or biological environment (air, ground, water and habitat) with extensive or long term impairment of ecosystem function or surface and ground water resources.
- An inconvenience/ disturbance/disruption/annoyance (including odour, dust, noise, traffic problem, loss of water supply) of a long duration or with a long term impact on interested and affected parties. A release of material (gas, liquid, solid) or energy that will cause chronic illness, permanent lost time injury, fatality or extensive property damage experienced by interested and affected parties.
- Irreparable damage to highly valued structures and sacred locations.
- Public or national / international media outcry.
- Instances where inspections undertaken by or for the regulator to check legal compliance, were found to be outside the permitted limits and have resulted in prosecution.
- Any incident with NEMA section 30(1) – and/or NWA section 20(1) reporting requirements (In the even where all administrative requirements have been complied with and the incident has been closed out by the authorities, it may be re-classified as a Level 2 environmental incident).

Where the environmental impact of a Level 2 environmental incident is still present 120 days after occurrence, the incident will be reclassified as a Level 1 incident.

NOTE: A Level 1 environmental incident usually should be reported to the authorities, usually result in a significant pollution and may entail risk of public danger. Level 1 environmental incidents may cause an irreversible impact even with the involvement of long-term external intervention i.e. expertise, best available technology, remedial actions, excessive financial cost etc.

Level 2 Environmental incident
An incident or sequel of incidents, whether immediate or delayed, that results or has the potential to result in:

- A moderate impact on the physical or biological environment (air, ground, water or habitat) with limited impairment of ecosystem function and/or surface and ground water resources.
- An inconvenience disturbance/ disruption/annoyance (including odour, dust, noise, traffic problems, loss of water supply) of moderate or with medium effect on interested and affected parties.

- A release of material (gas, liquid, solid) or energy that causes severe but reversible illness, non-lost time injury or moderate property damage experienced by interested and affected parties.
- Damage to rare structures of cultural significance or significant infringement of cultural values / sacred locations.
- Attention from local media or widespread complaints.
- Instances where inspections undertaken by or for the regulator to check legal compliance have been outside the permitted limits and an official pre-directive or directive was issued.
- Inability of Contractors to close out corrective actions in an NCR without proper reason.

Where the environmental impact of a Level 3 environmental incident is still present 3 days after occurrence, the incident will be reclassified as a Level 2 incident.

NOTE: A Level 2 environmental incident may be reported to the authorities, can result in significant pollution or my entail risk of public danger. The impact of Level 2 environmental incidents should be reversible within a short to medium term with or without intervention.

Level 3 Environmental incident

An incident or sequel of incidents, whether immediate or delayed, that results or has the potential to result in:

- A minor impact on the physical or biological environment (air, ground, water or habitat), with no significant or long-term impairment to the ecosystem function or surface/ground water resources.
- An inconvenience / disturbance / disruption / annoyance (including odour, dust, noise, traffic problems, loss of water supply) of short duration and with no long-term effect on the employees and the community.
- A release of material (gas, liquid, solid) or energy that has the potential to cause illness, or that causes short term discomfort or reversible health effect to interested and affected parties.
- Isolated complaints by interested and affected parties.
- Instances where inspections undertaken taken by or for the regulator to check for legal compliance, have been outside the permitted limits and a non-compliance notice was issued.
- Blatant negligence of Transnet CEMPr leading to the issuing of an NCR.

NOTE: A Level 3 environmental incident is not reportable to authorities, should not result in pollution and may not have a risk of public danger. The impact of Level 3 environmental incidents should be insignificant immediately after occurrence and/or once-off intervention on the day of occurrence.

Level 4 Environmental incident

A minor incident with lesser significance that did not necessarily result in damage or injury but that had the potential to cause damage to the environment, including:

- Could result in service disruption with a lesser significance;
- Did not necessarily result in damage;
- Had the potential , under different circumstances, to cause major damage to the environment; or

- Instances where inspections undertaken internally by Transnet to check for conformance with the Transnet Environmental Governance Framework have been outside the required limits (e.g. an environmental compliance score of less than 80%).

8.5.2 Procedure for Recording and Reporting Environmental Incidents

The procedure for recording and reporting environmental incidents is outlined below:

- Step 1: Immediately take all reasonable measures to contain and minimise the effects of the incident, including its effects on the environment and any risks posed by the incident to the health, safety and property of persons;
- Step 2: Notify the Transnet Environmental Officer in writing including the following information: the nature of the incident and initial classification; substances involved with quantities; initial measures taken to minimise impacts; causes of the incident; measures taken and proposed to avoid the reoccurrence of the incident;
- Step 3: Record the incident on the Environmental Incident Register
- Step 4: Undertake clean-up procedures;
- Step 5: Remedy the effects of the incident; and
- Step 6: Assess the immediate and long-term effects of the incident on the environment and on public health;

In the event of any Level 1 or 2 environmental incidents, the Contractor's Environmental Officer must complete a Transnet Incident Flash Report, Transnet Environmental Incident Report and record the incident in the Transnet Environmental Incident Register.

In the event of any Level 1 or 2 environmental incidents, the Transnet Environmental Officer will:

- Ensure that an Incident Flash Report has been compiled and that it contains the necessary information;
- Ensure that the Contractor has undertaken a detailed incident investigation; and
- Report, record, investigate and analyse the incident and communicate the required action plans to be implemented to the Transnet Construction Manager.

In the event of any Level 3 Environmental Incidents, the Contractors' Environmental Officer must complete a Transnet Environmental Incident Report and record the incident in the Transnet Environmental Incident Register.

In the event of any level 4 Environmental Incidents, the Contractors' Environmental Officer must record the incident in the Transnet Environmental Incident Register.

In the event of an incident (regardless of the level) occurring, the Transnet Environmental Officer must ensure that the problem statement on the report is clear, the actual or potential consequences are noted, and priority mitigation actions are indicated where necessary.

8.6 Communication and Consultation

The management of internal communication as well as the receipt, response and documentation of external communication relating to the construction phase of the project shall be done in accordance with the Transnet procedure for communication management, the requirements of the project environmental authorisation and this CEMPr.

8.6.1 Reporting Requirements

The Contractor shall submit monthly environmental reports to the Transnet Construction Manager and Environmental Officer in line with the requirements below and relevant to their activities. Reporting required in terms of compliance with the requirements of this CEMPr shall include but not be limited to:

- Progress with regards to the implementation of the CEMPr;
- Results of inspections, monitoring and audits conducted;
- Environmental incidents or non-conformances and the corrective actions implemented;
- Public complaints received;
- Requirements for relevant permits or licenses;
- Revisions to management plans and programmes.

8.6.2 Coega Environmental Monitoring Committee

The EMC shall meet on a quarterly basis from the inception of the project and shall report to the National DFFE. Transnet SOC Ltd shall attend quarterly EMC meetings and shall provide a report on construction progress and the status of environmental management and compliance, at these meetings.

8.6.3 Management of Complaints

A complaints register shall be established for the recording of any complaints that may be received during the construction phase of the project. The Complaints Register must be updated regularly, as new concerns or complaints are received. All complaints received will be discussed at environmental meetings and reported in environmental management reports. The status of each complaint must be indicated on the register, as open or closed. A complaint will remain open on the register(s) until all relevant parties are satisfied that the concern has been dealt with and that the matter has been resolved. All complaints shall be categorized in order to identify trends.

The following information must be recorded as a minimum when complaints are received:

- Date, time and nature of complaint received;
- Type of communication received;
- Contact detail of complainant;
- Response to complaint including actions implemented.

Contractors are required to immediately report all complaints received directly by them to the Transnet Construction Manager and Environmental Officer. Complaints must be responded to and closed-out within 10 days after receipt where practical.

8.7 Documentation and Records

The Transnet Environmental Officer will ensure that the Contractor's Environmental Officer is supplied with all required/applicable documents listed in the Transnet Contents for Contractors Environmental Files. This Document has been included as **Annexure A.**

The Contractor's Environmental Officer will complete and maintain copies of all documents and records listed in Annexure A and ensure that these documents and records are kept up to date.

The Contractor's Environmental Officer will submit these documents to the Transnet Environmental Officer on a monthly basis except where documents have remained unchanged in which case written notification to this effect must be provided to the Transnet Environmental Officer.

Once the Transnet Environmental Officer has conducted a site closure inspection and notified the Contractor that site closure will be granted, all documents described above must be handed over to the Transnet Environmental Officer after which an Environmental Site Closure Certificate will be issued.

NOTE: All documents/records are to be retained for a period of 10 years. In the event of environmental documentation/record being lost before receiving a Site Closure Certificate, the Contractor will be penalised according to the specifications laid down in the relevant project-specific NEC contract.

8.8 Application for Exemption from Complying with Parts of the CEMPr

The CEMPr is applicable to all construction activities associated with the project. It is however noted that some construction activities may vary in size, nature and complexity. For smaller contracts, or where the scope of work is limited, the Contractor may request, in writing to the Transnet Project Manager, for exemption from parts of the CEMPr that may not be relevant to the scope of their activities. The Transnet Project Manager will consult the Transnet Project Environmental Manager in reaching a decision on whether exemption from some of the CEMPr provisions may be granted.

9. Contractor Specific Compliance Requirements

9.1 Prior to Commencement of Construction

The Transnet Project Manager must ensure that the requirements below are requested from the Contractor in the Project Construction Contract Document, the Letter of Appointment and any other relevant correspondence with the Contractor prior to the start of works, as relevant.

9.1.1 Declaration of Understanding

The Declaration of Understanding (DoU) will be signed by a person of authority and provided by the Contractor as part of the Tender Documentation. The signed DoU is a written confirmation by the Contractor that the requirements of the CEMPr and other authorisations, permits and licenses are understood and will be complied with for the duration of their works on site. The pro-forma DoU to be signed by the Contractor has been included as **Annexure B.**

9.1.2 Resource Allocation

Financial implications relating to the implementation of the CEMPr must be recognised by the Contractor (for the construction phase) and adequate provision for these costs must be made prior to commencement of construction activities. Such costs can include (but may not be limited to) mitigation actions, environmental awareness training, monitoring and auditing requirements, measures for rectification and rehabilitation, including any equipment or specialists required for these items.

9.1.3 Appointment of Contractors' Environmental Officer

The Contractor will appoint a dedicated and suitably qualified Environmental Officer that will be responsible for environmental management on site during construction. The Contractor will forward details of the appointment to the Transnet Construction Manager and PEM for their review and approval. Should the Contractor's Environmental Officer change from that person identified during either the tender stage, or the construction period, the Contractor will submit the details of such appointment or assignment for the Transnet Project Manager's approval. No work will proceed until the new Environmental Officer is assigned or appointed.

The pro-forma appointment letter for the Environmental Officer to be appointed by the Contractor has been included as **Annexure C.**

9.1.4 Environmental Management Plans and Method Statements

Where relevant, an Environmental Management Plan and Environmental Method Statements, to meet the requirements of the CEMPr (activity based environmental method statements), will be provided by the Contractor as part of their Tender. Required method statements will be specified in the Quality Criteria of the tender. These include, but are not limited to, the following where applicable:

- Establishment of construction lay down area;
- Hazardous and non-hazardous waste management;
- Storm water management;
- Handling, Storage and Management of Hazardous Substances;
- Contaminated water management;
- Prevention of marine pollution;
- Hydrocarbon spills;
- Diesel tanks and refuelling procedures;

- Dust control;
- Spoil dumping;
- Sourcing, excavating, transporting and dumping of fill material;
- Noise and vibration control;
- Removal of rare, endemic or endangered species;
- Removal and stockpiling of topsoil;
- Rodent and pest control;
- Environmental awareness training;
- Site division (demarcation of the site);
- Emergency procedures for environmental incidents;
- Closure of construction laydown area.

Emergency construction activity Environmental Method Statements may also be required. Activities requiring Environmental Method Statements may not commence if these method statements have not been approved by the Construction Manager and PEM or Environmental Officer.

9.1.5 Environmental Inductions

A comprehensive environmental induction programme will be developed and implemented. The Contractor will ensure that all management, foremen and the general workforce, as well as all sub-contractors, suppliers and visitors to site have attended the Environmental Induction Programme prior to commencing any work on site.

Where new personnel commence work on site during the construction period, the Contractor will ensure that these persons also undergo the Induction Programme and are made aware of the environmental requirements and specifications on site. The Contractor must ensure that all of their personnel understand the requirements of the Environmental Authorisation and CEMPr for the project, as relevant to their scope of work.

Inductions, which need to be conducted prior to any construction works occurring, must include but not be limited to:

- Information on applicable specifications, plans and method statements which are applicable to the project.
- Project requirements in treatment and handling of flora and fauna;
- Management and minimising of waste, including waste separation;
- Maintenance of equipment to prevent the accidental discharge or spill of fuel, oil, lubricants, cement, mortar and other chemicals;
- Responsible handling, storage and transportation of hazardous materials;
- Environmental emergency procedures and incident reporting;
- General code of conduct towards I&AP's;
- Housekeeping, hazardous materials/dangerous goods, MSDS;

- Dust management and enhanced awareness;
- Water and electricity savings;
- Important animal species and the need to be aware of their presence on site to avoid collision and other disruptive activities which could affect the animals.

All visitors will be required to undergo a visitor's induction. Special shortened inductions may be provided for visitors to the Project where there is minimal potential for environmental harm. Contractors are responsible for the actions and conduct of their visitors, and must ensure that visitors obey all environmental requirements of the site. Visitors must be accompanied at all times.

9.2 During the Construction Period

9.2.1 Copy of the CEMPr and Familiarisation thereof

A copy of the CEMPr will be available on site and the Contractor will ensure that all the personnel on Site (including sub-contractors and their staff) as well as suppliers, are familiar with and understand the specifications contained in this document.

9.2.2 Weekly Environmental Monitoring Report

The Contractor's Environmental Officer will be required to provide the Transnet Environmental Officer with a weekly environmental monitoring report covering the events of the week. This will highlight key performance areas and provide feedback on corrective and preventive actions taken. The Contractor's Environmental Officer will have the weekly reports signed off by the Contractor's Construction Manager prior to submission to the Transnet Environmental Officer.

9.2.3 Environmental Site Meetings

Environmental Site Meetings will be held monthly on a day to be indicated by the Project Environmental Manager, or as and when required. These meetings must be attended by Senior Site Representative together with the Transnet Environmental Officer, Contractor(s), and Contractor's Environmental Officer ('s).

9.2.4 Site Clean-up for Closure

Retention money will not be paid until a Site Closure Inspection (conducted by the Transnet Environmental Officer) has taken place and has been signed off by the Transnet Construction Manager and Project Environmental Manager, together with the Site Closure Certificate.

10. Standard Environmental Specifications

This section describes the minimum standards for environmental management to which Contractors and sub-contractors must comply during Construction. The Contractor shall identify

the potential environmental impacts that may occur as a result of his/her activities and accordingly prepare separate Method Statements describing how each of these impacts will be prevented or managed so that the standards set below are achieved. These method statements shall be prepared in accordance with the requirements specified in Section 8.3 and 9.1.4 of this CEMPr.

The Contractor shall comply with the standards described below:

10.1 Environmental Awareness Training

An Environmental Awareness Program is considered a necessary part of the Construction Environmental Management Plan for the Project. Appropriate training of construction personnel will help ensure that all environmental regulations and requirements are followed which must be defined in the relevant Method Statement to be prepared by the Contractor.

Objectives of environmental awareness training are:

- Environmental Management – protecting the environment from the effects of construction by making personnel aware of sensitive environmental resources.
- Regulatory compliance – complying with requirements contained in project specific permit conditions, also complying with requirements of regional and local regulations.
- Problem recognition and communication – training personnel to recognise potential environmental problems, i.e. spills, and communicate the problem to the proper person for action.
- Liability control - non-compliance with regulatory requirements can lead to personal and corporate liability.

All individuals on the Project construction site will need to have a minimum awareness of environmental requirements and responsibilities. However, not all need to have the same degree of awareness. The required degree of knowledge is greatest for personnel in the Safety, Health, and Environmental Sections and the least for the manual personnel.

The Contractor shall present environmental awareness programmes on a weekly/bi-monthly basis (depending on project requirements) and keep record of all the environmental related training of personnel.

10.2 Site Planning and Establishment

Careful consideration must be given to the layout of the construction site prior to the commencement of construction. The appointed contractor must establish construction camps, offices, workshops and other facilities in a manner that does not adversely affect the environment. These facilities must not be sited in close proximity to sensitive areas and any area within the site that are not part of the development.

Before the onset of construction, the Contractor shall submit to the Transnet Construction Manager/Transnet Environmental Officer for his/her approval, plans of the exact location, extent and construction details of these facilities and the impact mitigation measures the Contractor proposes to implement.

The Site Plan must as a minimum include but not necessarily be limited to:

- Detailed layout of the construction works areas including access roads, site offices, material laydown areas, temporary stockpile areas and parking areas;
- Detailed locality and layout of all waste storage and handling facilities for litter, kitchen refuse and workshop-derived effluents;
- Proposed areas for the stockpiling of topsoil and excavated spoil material;
- Demarcation of the construction footprint including areas not to be disturbed by the development;
- Location of sewage and sanitary facilities at the site offices and at all localities on the site where there will be a concentration of labour. Sanitary arrangements should be to the satisfaction of the Transnet Construction Manager and Environmental Officer.

Site camps and laydown areas should not be sited in close proximity to Environmental Sensitive Areas (ESA's) as described in this CEMPr. Should this not be possible, approval for the location of these facilities must be granted by the Transnet Environmental Officer.

10.3 Identification and establishment of suitable access routes and roads

Existing access routes to the construction/works areas must be used as far as possible. The establishment of access roads must be restricted to within the development footprint to prevent unnecessary disturbance of the surrounding environment. Access routes/roads must be maintained in a good condition at all times during construction to minimize erosion and dust generation.

Vehicles should not be permitted to leave access roads, creating multiple tracks and increasing the potential for erosion and unnecessary disturbance of sensitive areas. Turning of vehicles should only take place within a clearly demarcated "turn area" located within the approved construction footprint. Contractors must co-ordinate the loading, transporting and offloading of material during construction to avoid formation of side-roads by passing vehicles.

Vehicles should only be parked within designated parking areas as demarcated on the Site Plan. Parking of vehicles in undisturbed/vegetated areas or outside demarcated areas is not permitted. On completion of construction all access routes/roads that will not become permanent must be adequately rehabilitated to the Satisfaction of the Transnet Project Environmental Manager and Independent Environmental Control Officer.

10.4 Demarcation of Site Limits

Prior to the commencement of construction, the actual site to be developed must be clearly demarcated by means of highly visible barriers.

Methods of demarcation shall be agreed with and approved by the Transnet Construction Manager and Environmental Officer and may vary between areas. Disturbance of vegetation outside of the demarcated development footprint in not permitted.

All plant, material and equipment required for construction must be located within the designated areas. Laydown areas must be clearly demarcated within the site limits. No activities or disturbance are allowed outside of the demarcated development footprint.

10.5 Eating Areas

The Contractor is responsible for providing temporary shade areas within the works area to ensure that workers do not leave the site to eat during working hours. Refuse bins must be provided at all established eating areas. Waste from refuse bins must be removed at the end of each shift and disposed of in accordance with the specified waste management requirements. Contractors must take note that NO fires shall be allowed anywhere on site, this includes site camps and working areas.

10.6 Effluent Management

All effluent water from site shall be disposed of in a properly designed and constructed system, situated so as not to adversely affect any Environmental Sensitive Areas as defined by this CEMPr. Only domestic type wastewater shall be allowed to enter designated systems.

10.7 Sewage and Sanitation

The Contractor is responsible for providing adequate sanitary facilities to all workers on site and for enforcing the proper use of these facilities. Facilities shall be serviced on a regular basis and proof thereof shall be available in the Contractor's Environmental File.

Ablution facilities shall be easily accessible and shall be positioned within walking distance from works areas. Use of open areas (i.e. the veldt) shall not, under any circumstances, be allowed.

Outside toilets shall be provided with locks and doors and shall be secured to prevent them from blowing over. The toilets shall also be placed outside areas susceptible to flooding and high winds (where possible) and away from environmental sensitive areas. The Contractor shall arrange for regular emptying of toilets and shall be entirely responsible for enforcing their use and for maintaining such facilities in a clean, orderly and hygienic condition to the satisfaction of the Transnet Construction Manager and Environmental Officer.

The Contractor shall ensure that there are separate toilet facilities for male and females on site.

10.8 Waste Management

Waste is grouped into "general" or "hazardous", depending on its characteristics. The classification determines handling methods and the ultimate disposal of the material.

Waste management on site during construction must be strictly controlled and monitored. Only approved waste disposal methods are permitted. The Contractor is responsible for ensuring that all site personnel are familiar with the proper disposal of waste. The contractor is required to institute an on-site waste management programme that must be detailed in a waste management

environmental method statement. The waste management method statement must address but not be limited to the following:

- An inventory of expected wastes.
- Category of wastes.
- Plan for dealing with waste.
- Compliance with authority requirements.
- Auditing and monitoring.
- Methods for control of spillages and clean-up.

A hierarchical control approach to waste management is encouraged. Waste should preferably be managed in the following order of preference:

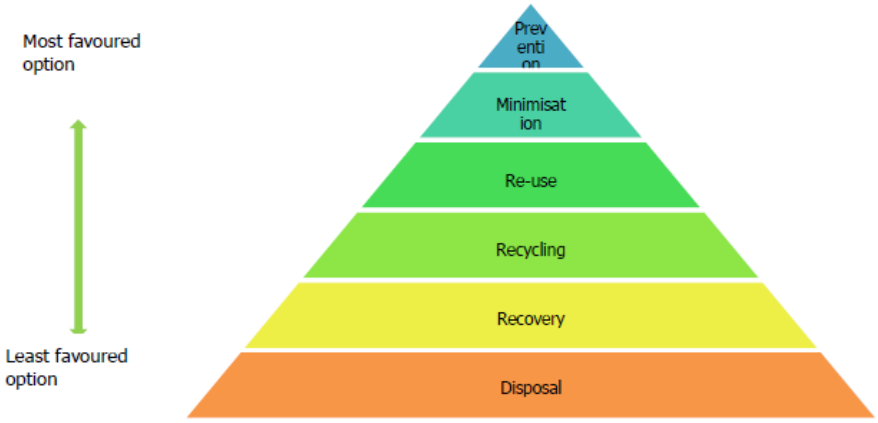


FIGURE 2: THE WASTE MANAGEMENT HIERARCHY
(Transnet Environmental Risk Management strategy and Framework, 2015:42)

1. **Avoidance/Prevention:** Using goods in a manner that minimises their waste components.
2. **Reduction/Minimisation:** Reduction of the quantity and toxicity of waste generated during construction.
3. **Re-use:** Removing an article from a waste stream for use in a similar or different purpose without changing its form or properties.
4. **Recycling:** Separating articles from a waste stream and processing them as products or raw materials.
5. **Recovery:** Reclaiming particular components or materials, or using the waste as a fuel.
6. **Treatment:** Processing of waste by changing its form or properties in order to reduce toxicity and quantity.
7. **Disposal:** Burial, deposit, discharge, abandoning or release of waste.

The Contractor is responsible for the removal of all waste from site generated through the Contractors activities. The Contractor shall ensure that all waste is removed to appropriate

licensed waste management facilities. (For the identification of an appropriate facility, the following source may be utilized: **http://sawic.environment.gov.za/**).

Contractors shall quantify all waste disposed of, whether general or hazardous (including waste disposed of by any sub-contractors) and keep record of these quantities on site. Management requirements for various waste types are outline below:

10.8.1 General Waste

Contractor shall manage GENERAL WASTE that is anticipated to be generated by activities as follows:

- Determine if waste is non-hazardous and obtain containers for waste storage;
- Notify waste hauler when container is full so that it can be removed and replaced with an empty;
- No littering is allowed on site. In the event where staff mobility is high, refuse bags will be made available by the Contractor;
- Provide documentary evidence of proper disposal of waste.

Contractor shall recycle GENERAL WASTE (as far as practically possible) that is anticipated to be generated by activities on site as follows:

- Obtain and label recycling containers for the following (whichever relevant) and locate them within temporary office building and trailers:
    - Office Waste;
    - Aluminium;
    - Steel;
    - Glass;
    - Ferrous Metals;
    - Non Ferrous Metals; and
    - Waste Timber

- Establish recycled material collection schedule;
- Arrange for full bins to be collected.

Contractors shall ensure that adequate waste facilities are provided for the nature of their works on site and that these facilities are properly maintained. Measures must be implemented to reduce the potential for litter and negligent behaviour with regard to the disposal of all refuse. Litter bins, containers and refuse collection facilities must be provided in all works areas and site camps. Placement of waste facilities must be done in consultation with and must be approved by the Transnet Construction Manager and Environmental Officer.

Waste storage containers must be equipped with lids, tip-proof, weatherproof and scavenger proof. Lids must remain closed to prevent wind-blown waste. Waste storage areas must be clearly demarcated and fenced off where practical.

No burning, on-site burying or dumping of waste will be permitted. All solid waste must be disposed of at appropriate licensed waste management facilities and waste disposal manifests maintained for audit purposes.

Contractors must provide metal refuse bins or equivalent plastic refuse bins with lids for all works areas. Refuse must be collected and removed off site at least twice per week or more frequently when required. Domestic waste must be transported to approved refuse disposal sites in covered containers or trucks.

Construction rubble and other waste materials must be disposed of at a licensed waste disposal site and all disposal slips maintained.

10.8.2 Hazardous Waste

The Contractor shall manage HAZARDOUS WASTE anticipated to be generated by his operations as follows:

- Characterise the waste to determine whether general or hazardous.
- Obtain and provide an acceptable container with correct and visible classification label. Place hazardous waste material in allocated container.
- Inspect the container on a regular basis as prescribed by the Contractor's waste management plan.
- Track the accumulation time for the waste. Haul the full container to the disposal site.
- Provide documentary evidence of proper waste disposal of the waste (Waste Disposal Certificate).

The Contractor's Environmental Officer will work in conjunction with the Contractor's construction safety and industrial hygiene personnel to create a Hazardous Materials Management Program. This program will establish the necessary protocol for proper handling and removal of hazardous materials on the site.

All hazardous waste including oil and other chemicals (paints and solvents) must be stored in enclosed areas and clearly marked. Such waste must be disposed of at an approved hazardous waste disposal site and disposal manifests kept for audit purposes.

Used oil and grease must be removed from site and sold to an approved used oil recycling company. The spoiling of tar or bitumen products on site, over embankments, or in any excavations, will not be permitted. Used oil, lubricants and cleaning materials, from the maintenance of machinery and equipment must be collected in holding drums and removed from site by a specialist oil recycling company for recycling or disposal at an approved hazardous waste site.

10.8.3 Waste Water

Water from kitchens, laboratories and sinks must be discharged into a conservancy tank for disposal at a licensed waste disposal site. Runoff from refuelling facilities / workshops / machinery washing areas and concrete batching areas must be collected into a conservancy tank and disposed of at an approved waste disposal site.

The Contractor will be required to submit a method statement detailing how wastewater would be collected from all wastewater generating areas, as well as storage and disposal methods.

10.9 Dust Management

Material in transit should be loaded and contained within the load bin of the vehicle in such a way as to prevent any spillage onto roads and the creation of dust clouds. If necessary, the load bin of the vehicle shall be covered with a tarpaulin to prevent dust.

Dust is to be controlled on unpaved access roads and site roads using sprayed water.

Contractors are responsible for managing dust generated as a result of their activities. Some dust control measures which are normally applied during construction are presented in this section for inclusion by the Contractor in the Dust Control Method Statement:

- Operate vehicles within speed limits, where no speed limit has been specified the limit shall be 20km/h;
- Wash paved surfaces within the construction area twice a week;
- Minimise haulage distances;
- Apply water to gravel roads with a spraying truck when required;
- Environmentally Friendly soil stabilisers may be used as additional measures to control dust on gravel roads and construction areas;
- Dust suppression measures will also apply to inactive construction areas. (An inactive construction site is where construction activities will not be undertaken for a month or more);
- Construction material being transported by trucks must be suitably moistened or covered to prevent dust generation where practical;
- Implement a system of reporting excessive dust conditions by construction personnel (as instructed through Environmental Awareness Training);
- Implement a dust monitoring programme as specified in Section 5 of the CEMPr;
- Water used for dust control shall only be taken from approved sources.

Exposed soil and material stockpiles must be protected against wind erosion. The Contractor is responsible for the implementation of adequate dust suppression measures (e.g. water spray vehicles, covering of material stockpiles, etc.) where required.

Sand, stone and cement shall be stored in demarcated areas and shall be covered or sealed to prevent wind erosion and resultant deposition of dust on surrounding indigenous vegetation.

10.10 Erosion and Sedimentation Control

Erosion and sedimentation control measures must be implemented for the duration of construction. Contractors must protect all areas susceptible to erosion by installing necessary temporary and permanent drainage works as soon as possible and by taking any other measures necessary to prevent storm water from concentrating and scouring slopes and banks.

Any erosion channels/gullies developed during construction must be backfilled and compacted and the areas restored to a proper condition. Stabilisation of cleared areas to prevent and control erosion and/or sedimentation must be actively managed.

Traffic and movement over stabilised areas must be restricted and controlled, and damage to stabilised areas repaired and maintained. In areas where construction activities have been completed and no further disturbance is envisaged, rehabilitation and revegetation should commence as soon as possible.

Structural and non-structural (vegetative) erosion control measures shall be designed, implemented, and properly maintained in accordance with best management practices which will include the following:

- Scheduling of activities to minimise the area of disturbance at any one time;
- Implementation of re-vegetation as early as feasible;
- Limiting construction traffic and/or avoidance thereof on access roads and areas to be graded to the extent feasible at drainage ditches;
- Compacting loose soil as soon as possible after excavation, grading, or filling;
- Using silt fences, geo-textiles, temporary rip-rap, soil stabilisation with gravel, diversionary berms or swales, small sedimentation basins, and gravelled roads to minimise transport of sediment;
- Develop and implement an erosion and sedimentation control environmental method statement and ensuring that construction personnel are familiar with and adhere to the requirements thereof;
- Managing runoff during construction;

The Contractor shall be responsible for checking and maintaining all erosion and sedimentation controls.

10.11 Storm Water Management

The Contractor must ensure that pollution of ground or surface water does not occur as a result of site activities. The Contractor must be aware that, apart from run-off from overburden and stockpiles, storm water can also be contaminated from batch plants, workshops and vehicle wash-down slabs and that contaminants during construction may include hydrocarbons from fuels and lubricants, sewerage from employee ablutions and excess fertiliser from rehabilitated areas, etc.

The Contractor shall take note that discharges to controlled waters such as the sea, rivers, groundwater or to sewerage systems are controlled under South African Water Legislation. The following specific measures are required:

- Temporary drainage must be established on site during the construction period until permanent drainage is in place. Contractors are responsible for maintaining the temporary drainage in their areas. Contractors must provide secondary drainage that prevents erosion;
- Contractors must employ good housekeeping in their areas to prevent contamination of drainage water;
- The Contractor shall clear stagnant water;

- Contractors shall ensure that no contaminated surface water flows off-site as a result of their activities. Silt traps shall be constructed to ensure retention of silt on site and cut-off ditches shall be constructed to ensure no runoff from the site except at points where silt traps are provided. The Contractor shall be responsible for checking and maintaining all silt traps for the duration of the project;
- Silt Fencing or similar alternatives shall be installed at the perimeters of actively disturbed areas
- If applicable, the Contractor shall be responsible for collection, management, and containment within the site boundaries of all water emanating from general site preparation activities. Methods for removal of water from excavations and trenches shall be agreed with the Transnet Construction Manager and Project Environmental Manager prior to implementation. No discharge of water to off-site land or surface water bodies will be allowed;
- On-site drainage shall be accomplished through gravity flow. The surface drainage system shall consist of mild overland slopes, ditches, and culverts. The graded areas adjacent to buildings shall be sloped away with a 5% slope. Other areas shall have a minimum slope of 0,2% or as otherwise indicated.

10.12 Noise Management

The Contractor must take precautions to minimise noise generated on site as a result of construction activities, especially when working in areas or on activities that may impact on surrounding sensitive receptors. The following noise control measures must be implemented:

- Keep all equipment in good working order;
- Operate plant and equipment within its specification and capacity and don't overload machinery;
- Ensure that equipment is turned off when not in use;
- Apply regular maintenance, particularly with regards to lubrication;
- Operate equipment with appropriate noise abatement accessories, such as sound hoods;
- Sensitive social receptors shall be notified of any excessive noise-generating activities that could affect them.

Noise control measures to be implemented by the Contractor must be clearly specified in the noise control method statement and must as a minimum take into consideration the following:

- Ensure that the potential noise sources conform to the South African Bureau of Standards recommended code of practice, *SANS 10103:2004*, so that it will not produce excessive or undesirable noise when released;
- All the Contractor's equipment shall be fitted with effective exhaust silencers and shall comply with the South African Bureau of Standards recommended code of practice, *SANS 10103:2004*, for construction plant noise generation;
- All the Contractor's vehicles shall be fitted with effective exhaust silencers and shall comply with the Road Traffic Act, (Act 29 of 1989) when any such vehicle is operated on a public road;

- Contractors shall ensure that all noise-related occupational health provisions are met. (Occupational Health and Safety Act, (Act 85 of 1993).

10.13 Water Provision and Management

Contractors shall provide safe drinking water fit for human consumption at site offices and all other working areas. All drinking water must be taken from approved sources and comply with recognised standards for potable use. The generally acceptable standard is that a supply of drinking water shall be available within 200m of any point on the construction site. Drinking water and multi-purpose use water storage facilities must be clearly distinguished and marked.

Abstraction of water from any water course (stream, river, or dam) without the expressed permission of the Transnet Construction Manager and Environmental Officer is not permitted. Such permission shall only be granted once it can be shown that the water is safe for use, that there is sufficient water in the resource to meet the demand, and once permission has been obtained from the Department of Water and Sanitation in accordance with the requirements of the National Water Act (Act 36 of 1998).

Methods must be employed to ensure that water is not wasted. Environmental awareness training must be used to create awareness with staff to conserve water and to prevent pollution of water.

Method Statement(s) must be prepared by the Contractor for the various water uses. The Contractor shall keep record of the quantities of water used during construction (including use by sub-contractors), irrespective of the purpose of use.

10.14 Handling and Batching of Concrete and Cement

Contractor are advised that cement and concrete are regarded as hazardous to the natural environment on account of the high pH of material and chemicals contained therein.

Concrete and cement mixing directly on the ground is not permitted and must take place on impermeable surfaces.

Concrete batching shall only be conducted in demarcated areas which have been approved by the Transnet Construction Manager and Environmental Officer. Such areas shall be fitted with a containment facility for the collection of cement-laden water. This facility shall be bunded and have an impermeable surface protection so as to prevent soil and groundwater contamination.

Concrete batching activities must be located away from environmental sensitive areas (as defined in this CEMPr). All runoff from batching areas must be strictly controlled, and cement-contaminated water must be collected, stored and disposed of off-site at a licensed waste disposal site. Contaminated water storage facilities must not be allowed to overflow and appropriate protection from rain and flooding must be implemented.

Washing of equipment and tools used for the purpose concrete mixing such as shovels, mixer drums, concrete chutes, etc. shall be done within a designated wash-bay facility. Water used for washing shall be restricted as far as practically possible and must be re-used

Ready-mix concrete trucks are not allowed to wash out anywhere other than in designated wash-bay facilities. The facility must be approved for this purpose by the Transnet Construction Manager and Environmental Officer.

The Contractor shall periodically clean out hardened concrete from the wash-bay facility or concrete mixer, which can either be reused or disposed of as per accepted waste management procedures.

Used (empty) cement bags must be collected and stored in weatherproof containers to prevent wind-blown cement dust and water contamination. Used cement bags are not allowed to be used for any other purpose and must be disposed of on a regular basis via the Contractors' waste management system and in accordance with relevant approved environmental method statements.

All excess concrete must be removed from site and disposed of on completion of concrete works. The washing of visible remains of cement or concrete into the ground is not permissible. All excess aggregate should also be removed.

The Contractor is required to submit a method statement detailing cement storage, concrete batching areas and methods, method of transport of cement and concrete, storage and disposal of used cement bags for each concrete batching operation.

10.15 Spray Painting and Sandblasting

Spray painting and sandblasting should be kept to a minimum. All painting should, as far as practicable, be done before equipment and material is brought to site. Touch-up painting is to be done by hand painting or by an approved procedure. A Method Statement shall be submitted to the Transnet Environmental Officer for approval.

Only approved sources of sand may be used for sandblasting. The contractor shall ensure that the sandblasting methodology allows for measures to minimise dust generation. A detailed method statement must be prepared and submitted for approval by the Transnet Construction Manager and Environmental Officer.

The relevant Contractor will inform his Environmental Officer of when and where spray painting or sandblasting is to be carried out prior to commencement of work. The Contractor's Environmental Officer will monitor these activities to ensure that adequate measures are taken to prevent contamination of the soil.

If the area is in confined or elevated areas, a protection plan must be issued for approval by the Transnet Environmental Officer.

10.16 Management of Hazardous Substances

Contractors shall develop and implement environmental method statements for the handling, storage, use and disposal of fuel, hazardous and poisonous substances including hydrocarbon containing materials.

Contractors shall comply with all relevant national, regional and local legislation with regard to the transportation, use and disposal of hazardous materials.

Material Safety Data Sheets (MSDS) for all hazardous substances shall be kept on site. Information on all hazardous substances shall be made available to personnel. Personnel handling hazardous substances shall be adequately trained and educated on proper use, handling and disposal.
A Register of hazardous substances, together with storage procedures for these materials shall be developed and maintained by the Contractor's Environmental Officer for the duration of the Contractors' works on site.

10.16.1 Storage of hazardous substances / materials

Petrochemicals, oils and grease shall only be stored under controlled conditions. All hydrocarbon materials (i.e. fuel, oil, hydraulic fluids and grease) shall be stored in a secured, designated area that has restricted entry and all containers shall be closed to prevent rainwater ingress. Authorisation to store hazardous substances shall be obtained from the relevant authority. Warning signs indicating the nature of the stored materials shall be clearly displayed on the storage facility or containment structure. Bunded containment areas shall be provided for the storage of hazardous materials to prevent pollution of the surrounding environment by leaks or spillages.

Tanks containing fuels shall have lids and shall remain firmly shut. Fuel stores shall be placed on a bunded sealed base. The bund should accommodate 110% of the total volume for single tanks. Where two or more tanks are installed within the same bund, the bunds should accommodate 110% of the largest tank or 25% of the total capacity of all tanks, whichever is the greater. Any waste water or spilled fuel collected within the bund shall be disposed of as hazardous waste.

Necessary precautions shall be taken to prevent fires or spills at hazardous substance stores. No smoking shall be allowed in the vicinity of the stores. Adequate fire-fighting equipment shall be available at these stores.

Where oil-separators are proposed to be installed, these shall be approved by the Transnet Construction Manager and Environmental Officer and will be subject to the approval of an environmental method statement governing environmental and related risks.

10.16.2 Fuels and Chemicals

Contractors shall ensure that the necessary materials and equipment are available on site to deal with spillages of any of the materials used or stored on site. All measures shall be taken to ensure that oil, petrol, diesel, or other hazardous substances are not discharged onto the ground.

Drip trays shall be placed under all pumps, machinery and equipment (requiring oil, diesel, or other substances for operation) that are to remain in one position for longer than two days. The drip trays shall be emptied regularly and the contaminated material(s) disposed of off-site at a facility capable of and authorised to handle such waste water. Drip trays shall be cleaned before any possible rain events that may result in the drip trays overflowing. Used oil shall be stored at a central location, prior to removal off site, in appropriate containers with covers.

All oil-, petrol-, and diesel-soaked sand shall be removed immediately and shall be disposed of as hazardous waste. Equipment and machinery shall be adequately maintained and regularly inspected.

10.16.3 Servicing of Plant and Equipment

The servicing of plant and equipment shall take place in areas designated for this purpose. All waste generated by these activities shall be managed in terms of the requirements of this CEMPr.

All equipment that leaks onto the ground shall be repaired immediately or removed. The change of oil or lubricants shall be done at designated locations, except if there is a breakdown or an emergency repair. In such instances appropriate absorbent materials (or equivalent) and/or drip trays shall be available to collect any oil or liquids.

10.16.4 Workshops, Equipment, Maintenance and Storage

All vehicles and equipment must be kept in good working order to maximise efficiency and minimise the risk of pollution. Maintenance, including washing and refuelling of plant on site must be done at designated locations at workshop areas. These designated areas must be agreed with the Transnet Construction Manager and Transnet Environmental Officer. Contractors shall ensure that no contamination of surrounding areas occurs around workshops and plant maintenance facilities. All machinery servicing areas must be adequately bunded.

Drip trays should be used to collect used oil, lubricants and other substances during maintenance. Drip trays must be provided for all stationary plant. Washing of equipment should be restricted to urgent maintenance requirements only. Adequate wastewater collection facilities must be provided.

10.16.5 Stationary/designated Refuelling of Plant and Equipment

No vehicles or machines shall be serviced or refuelled on site except at designated and approved servicing or refuelling locations. No oil or lubricant changes shall be made except at designated locations, or in case of breakdown or emergency repair.

The Contractor shall store fuel and oil at a secure area, which shall be bunded to contain 110% of the total volume within the bund and designed with an impervious layer or liner or paved surface to prevent spillage from entering the ground.

The Contractor shall provide details of its proposed fuel storage and fuelling facility to the Transnet Environmental Officer for approval. The design shall comply with the regulations of the National Water Act, (Act 36 of 1998), the Hazardous Substances Act, (Act 15 of 1973), the Environmental Conservation Act, (Act 73 of 1989), National Environmental Management Act, (Act 107 of 1998), and the Occupational Health and Safety Act, (Act 85 of 1993), mainly the Construction - and Hazardous Chemical Substances Regulations.

10.16.6 Mobile Refuelling

In certain circumstances, the refuelling of vehicles or equipment in a designated area is not a viable/practical option and refuelling has to be done from a tank, truck or fuel bowser moved around on site. In such situations, the Contractor may request approval from the Construction Manager to conduct mobile refuelling subject to the following control measures:

- Secondary containment equipment shall be in place. This equipment shall be sized to contain the most likely volume of fuel that could be spilled during transfer.
- Absorbent pads or drip trays are to be placed around the fuel inlet prior to dispensing.
- Mobile refuelling units are to be operated by a designated competent person.
- The transfer of fuel must be stopped prior to overflowing. Fuel tanks or refuelling equipment on vehicles may only be filled to 90% carrying capacity.
- Mobile refuelling tanks must be stored in an area where they are not susceptible to collisions. The fuel storage area must be located away from environmental sensitive areas.
- All mobile refuelling tanks are to be properly labelled and fire extinguishers shall be located near the fuel storage areas. These extinguishers must be of a suitable type and size.

10.17 Spill Response

Contractors shall have adequate spill response materials/equipment on site which must be aligned with the volumes of hazardous substances used on site and the risk of pollution to environmental sensitive areas.

Contractors shall provide details of their spill response plan in the event of any spills of fuel, oils, solvents, paints or other hazardous materials for approval by the Transnet Construction Manager and Environmental Officer. The plan must outline measures to be taken in removing contaminated material from site and demonstrate complete removal of contamination.

The Contractor shall instruct construction personnel on the following spill prevention and containment responsibilities:

- Immediately repair all leaks of hydrocarbons or chemicals;
- Take all reasonable means to prevent spills or leaks;
- Do not allow sumps receiving oil or oily water to overflow;
- Prevent storm water runoff from contaminated areas which may have been caused by leaking or spilled drums of oil or chemicals;
- Do not discharge oil or contaminants into storm water or sewer systems.

If a spill occurs on land, the Contractor must:

- Immediately stop or reduce the spill;
- Contain the spill;
- Recover the spilled product;
- Remediate the site;
- Implement actions necessary to prevent the spill from contaminating groundwater or surface water;
- Dispose of contaminated material at a location designated thereto and provide proof thereof.

Any spill to water has the potential to disperse quickly, therefore, the spill must be contained immediately using appropriate containment equipment. If a spill to water occurs, the Contractor must:

- Take immediate action to stop or reduce the spill and contain it;
- Notify the appropriate on-site authorities;
- Implement actions necessary to prevent the spread of the contamination by deploying booms and/or absorbent material;
- Recover the spilled product;
- Properly dispose of spilled material and provide proof thereof.

10.18 Fire Prevention

Prior to the start of any construction work for the Project at the Port of Ngqura, all Contractors are required to develop detailed Fire Contingency Plans/Method Statements for each of their construction sites, which must include but not be limited to the following:

- A list of the major workplace fire hazards;
- Proper handling and storage procedures;
- Potential ignition sources (such as welding and smoking);
- Control procedures; and
- Type of fire protection equipment or systems to be used for control.

Contractors must take note that open fires are prohibited. Appropriate fire safety training shall be provided to staff that will be on site for the duration of the construction phase. Fire-fighting equipment shall be made available at various appropriate locations on the construction site.

10.19 Materials Handling and Storage

The potential environmental impact that may result from the handling, use, storage and disposal of materials used during construction must be minimised as far as reasonably possible. Environmental considerations such as proximity to environmental sensitive areas (vegetation, Coega River and Coega River Estuary etc.) must be taken into consideration when citing spoil and other material storage areas. These storage areas must be agreed with the Transnet Construction Manager and Environmental Officer.

10.20 Transportation of Materials

The Contractor is responsible for ensuring that all suppliers and delivery drivers are aware of requirements and restrictions (e.g. no-go areas) in terms of this CEMPr. Material must be appropriately secured to ensure safe passage between destinations during transportation.

Loads must have appropriate cover to prevent spillage from vehicles where practical. The Contractor will be held responsible for any clean-up resulting from the failure to properly secure transported materials.

10.21 Stockpiling of Materials

The Contractor must plan activities so that material from excavations can as far as possible be transported to and placed at points where it is required for re-use and or storage areas for future use.

Should temporary stockpiling become necessary, the areas for the stockpiling of excavated material must be indicated on the site layout plan. Stockpile areas will only be permitted within the authorised project footprint or existing approved stockpile areas within the Coega IDZ.

Any area to be used for stockpiling or material laydown shall be stripped of topsoil. Stockpiles must be positioned and sloped to create the least visual impact. Material stockpiles may not be sited in close proximity to the project footprint boundaries in order to avoid impacts on the surrounding Open Space Areas. Stockpiling of material is not permitted in close proximity of the Coega River and Coega River Estuary.

Stockpiles must as far as reasonably possible be positioned in areas sheltered from wind and rain to prevent erosion and dispersion of loose materials. Stockpiled soil shall be protected by adequate erosion-control measures. Stockpiles shall be placed on flat surfaces where runoff will be minimised.

The height and slope of material stockpiles must be limited to reduce wind entrainment. Stockpiles must preferably not be higher than 2m.

No foreign material generated during construction is allowed to remain on site. Areas affected by stockpiling must be reinstated, where required, to the satisfaction of the Transnet Construction Manager and Environmental Officer and must be done in accordance with the requirements for rehabilitation that may be specified by this CEMPr and/or the Coega Development Corporation (CDC).

Contractors shall be required to submit a method statement for the management of all stockpile and material laydown areas for approval by the Transnet Construction Manager and Environmental Officer.

10.22 Quarries and Borrow Pits

The contractor shall make use of commercial suppliers for all rock and sand raw materials. The Contractor shall ensure that suppliers are in possession of required authorisations permits/licenses and keep record of the quantity of material supplied.

The Contractor will not make direct use of any borrow pits and quarries unless written approval from the Construction Manager has been obtained and a Method Statement has been submitted and approved. The Method Statement shall provide a detailed description of the location of the borrow pits and/or quarries and the procedures that will be followed to adhere to any pertinent national or local legislation (e.g. mineral extraction, rehabilitation, safety and noise levels).

10.23 Energy Management

The Contractor shall measure and keep updated records of the following:

- Electricity consumption (to be measured in Kilowatt Hours);
- Fuel consumption (to be measured in liters).

10.24 Visual Impact Management

Transnet shall ensure that the following are considered and allowed for during design of buildings and construction activities and shall instruct service providers and contractors accordingly:

- Lighting in works areas and site camps must be sited in such a way and directed away from sensitive areas within the Project Footprint to avoid disturbance of animals and birds in the Port and on the islands;
- Cut and fill slopes for roads and other accesses should be shaped so that the new cut face is similar to the existing adjacent slopes and re-vegetated with indigenous vegetation.
- The design of structures and infrastructure must take the Visual Impact Guidelines of the Coega Industrial Development Zone into consideration and must take place in consultation with the Coega Development Corporation.
- Disturbance caused by the establishment of access/haul roads, site camps and laydown areas must be limited and restricted within the authorised project footprint and must be rehabilitated on completion of construction.
- All areas not required for operation, but cleared for construction, must be rehabilitated in accordance with the requirements of this CEMPr.
- Lighting should be carefully planned and designed to avoid excessive lighting in the vicinity of the port, within acceptable safety parameters;
- All building and lighting designs shall be made available to SANParks for comment.

10.25 Social and Labour Issues

The criteria for and selection of labourers, sub-contractors and suppliers for the project shall demonstrate preference for the local community and shall be aligned with the criteria set by the Coega Zone Labour Agreement (ZLA) as well as Transnet Policies and Procedures.

10.25.1 Worker HIV/Aids Awareness Programmes

Contractors are required to provide proper HIV/AIDS awareness training to all workers on site. A detailed method statement indicating how, where and when the training will be done must be compiled. Records must be kept of all awareness training sessions together with lists of attendees. The programme can be integrated into the environmental awareness programme for workers.

11. Project Environmental Specifications

This Section describes specific environmental standards and requirements to be complied with for all construction work at the Port of Ngqura.

These requirements are derived from conditions of Port and Project Environmental Authorisations and/or other applicable environmental permit(s) and licence(s) as well as recommendations and mitigation measures from various Specialists contained in relevant Environmental Impact Reports.

11.1 Demarcation of Open Space Areas

Protection of Open Space Areas in the Coega IDZ and Port of Ngqura is a mandatory requirement in terms of the legislative framework applicable to the area. The demarcation of Authorised Open Space Areas within and/or adjacent to the Project Footprint must be undertaken prior to commencement of any construction related activities to ensure protection of the Open Space areas from accidental ingress or damage during construction. Demarcation of Open Space Areas shall be done in accordance with the methodology approved for the Coega IDZ and Port of Ngqura. The demarcation methodology is outlined below:

- Demarcation of the Open Space must be done using wooden survey poles;
- The top 30cm of the wooden survey poles must be painted with weatherproof white paint, followed by the next 30cm painted green;
- Wooden survey poles must be a minimum width of 50mm;
- Wooden survey poles must be between 1.5 and 2.1m in height and spaced accordingly, depending on the density of the vegetation, with a maximum distance of 10m apart;
- Signage to indicate the boundaries of the Open Space System within the Port of Ngqura must be erected in various locations along the Open Space boundary.

11.2 Identification, Removal and Relocation of Plant Species of Special Concern

All plant species of special concern as well as plant species suitable for landscaping and rehabilitation purposes shall be identified, removed and relocated (Search and Rescue) to pre-identified Areas within the Port of Ngqura, prior to commencement of any construction related activities within the Project Footprint. Search and Rescue shall be undertaken in accordance with the requirements of relevant Legislation and permits issued by the competent Authority.

Transnet shall appoint a suitably qualified and experienced Ecological Specialist to undertake the required Search and Rescue. The Specialist will identify species that must be relocated, selectively remove the plants, cuttings and, where possible, seed and translocate the species to the designated areas.

The appointed Specialist shall be responsible for maintenance of relocated plant species for a specified period. Monitoring of the survival of rescued plant species shall be undertaken for a specified period and monitoring reports submitted to the Transnet Project Environmental Manager.

11.3 Environmental Sensitive Areas (ESAs)

Contractors are advised that certain areas in and around the development footprint are environmentally sensitive and include amongst others vegetated areas, the Coega River and Estuary, wetlands, and sites of Archaeological and Paleontological importance. ESAs may occur within the project area but may not necessarily form part of the development footprint.

In order to minimize adverse impacts to the ESAs during construction, ESAs must be clearly demarcated and must not be entered or used for any purpose. Demarcation must be highly visible to ensure that the location of sensitive areas is obvious from the Contractor's site and from the approach to the Contractor's Site.

Contractors must prevent physical disturbance or pollution of these areas. Transnet may impose conditions on operations near ESAs including instructing contractors to restrict the number of construction personnel and equipment operating near these areas.

11.4 Demarcation of Works Areas

Prior to the commencement of construction, the actual site to be developed must be clearly demarcated by means of highly visible barriers and must be approved by the Transnet Construction Manager and Project Environmental Manager. Areas within the authorised project footprint that is not required for construction shall remain undisturbed and must be clearly demarcated as no-go areas. Vegetation within the demarcated zone required for construction may be cleared. Disturbance of vegetation outside of the demarcated development footprint in not permitted.

11.5 Protection of Faunal Species

Transnet shall appoint a suitably qualified and experienced Ecological Specialist to identify, remove and relocate fauna that may be present within the project footprint to other agreed Open Space Areas within the Port or Coega IDZ. The Specialist shall undertake required activities in accordance with the requirements of relevant Legislation and permits issued by the competent Authority.

On no account shall any hunting or fishing activity of any kind be allowed. This includes the setting of traps, or the killing of any animal caught in construction areas. On no account shall any animal, reptile or bird of any sort be killed. This specifically includes snakes or other creatures considered potentially dangerous that may be present on site.

Where animals are encountered in works areas during construction contractors are required to notify the Transnet Environmental Officer who would be responsible for implementing required actions for effective relocation in consultation with the appointed Specialist and relevant authority.

Lighting in construction areas must be carefully planned so as to not disturb animals in close vicinity of the works areas and in the surrounding Open Space Areas. The contractor Environmental Officer shall monitor all open excavations and trenches on a daily basis for any animals that may be trapped.

The Contractor shall provide adequate facilities for all his staff so that they are not encouraged to supplement their comforts on site by accessing what can be taken from the natural surroundings. The Contractor shall ensure that energy sources are available at all times for construction and supervision personnel for heating and cooking purposes.

11.6 Vegetation Clearing

The destruction of certain tree species requires a license in terms of the National Forest Act of 1998 as amended. Transnet shall be responsible for obtaining the required license prior to the clearance of any vegetation. The clearing of vegetation should be kept to a minimum, keeping the width and length of earthworks to a minimum. Blanket clearing of vegetation shall not be permitted. Vegetation shall only be cleared in areas required for construction.

Vegetation clearing must take place in a phased manner in order to maintain vegetation cover for as long as possible. Cleared vegetation will not be permitted to remain on site. Contractors must give consideration to chipping of vegetation and stockpiling of vegetation chips in designated areas for use during rehabilitation. Alternatively cleared vegetation must be removed from site and disposed of as waste at a licensed waste disposal site.

During clearing of woody vegetation no ground cover or grass and topsoil must be removed and damage to this layer must be minimised as far as possible.

The Contractor shall ensure that all works are undertaken in a manner that prevents disturbance of vegetation outside of the development footprint.

11.7 Removal of Topsoil

Topsoil shall be removed up to a maximum depth of 30cm and stockpiled for re-use during rehabilitation and landscaping activities. Topsoil shall be stockpiled separately from other subsoil and material stockpiles.

Topsoil stockpiles shall not be higher than 2m and shall be located in predetermined designated areas. It is recommended that stockpiles are flattened at the top, without being compacted, to allow for easier growth of vegetation and ultimate protection against erosion.

Vehicles shall not be allowed access onto topsoil stockpiles after it has been placed. Topsoil stockpiles shall not be allowed to become contaminated with oil, diesel, petrol, waste or any other material, which may inhibit the later growth of vegetation. Topsoil stockpiles that are not used within three (3) months after stripping shall be seeded to prevent dust and erosion.

The Contractor shall apply soil conservation measures to the stockpiles to prevent erosion. This can include the use of erosion control fabric or grass seeding.

Topsoil shall be reinstated upon completion of construction (in all areas requiring rehabilitation/reinstatement) to allow plants to rapidly re-colonise bare soil areas.

11.8 Protection of Heritage Resources

If any archaeological or paleontological artefacts or remains are uncovered during earthmoving activities, work in the vicinity of the find must cease immediately. The Contractor will be required to notify the Transnet Construction Manager and Environmental Officer. The Transnet Environmental Officer will be responsible for contacting the South African Heritage Resources Agency (SAHRA) and relevant authorities.

The Contractor will be required to abide by the specifications as set out by SAHRA or the heritage specialist appointed to investigate the find. The Contractor may not, without a permit issued by the relevant heritage resources authority destroy, damage, excavate, alter, deface or otherwise disturb archaeological or paleontological material.

If a grave or midden is uncovered on site, or discovered before the commencement of work, all work in the immediate vicinity of the graves/middens shall be stopped and the Transnet Construction Manager informed of the discovery. SAHRA and the relevant authority must be contacted and in the case of graves, arrangements made for exhumation and reburial.

Transnet shall appoint an archaeologist and palaeontologist to undertake monitoring as specified by this CEMPr as well as to train site monitors (such as Transnet Environmental Officer, ECO and Contractor Environmental Officer) to identify archaeological and paleontological sites and to report to the construction manager when such sites are found/uncovered.

The Transnet Environmental Officer and independent Environmental Control Officer shall examine all major bedrock excavations for fossil material, at regular intervals. Any fossil remains that may be found shall be safeguarded in situ.

11.9 Rehabilitation of Disturbed Areas

Contractors shall rehabilitate the entire site upon completion of work. Transnet may require the Contractor to appoint a suitably qualified rehabilitation specialist to develop a detailed rehabilitation plan. The Rehabilitation Plan must be submitted to the Transnet Construction Manager and Project Environmental Manager for approval, at least six weeks before completion of construction works. The following are critical aspects to be included in the rehabilitation plan:

- Details of soil preparation procedures;
- A list of the plant species that will be used in the rehabilitation process. Note that these should all be indigenous species that are endemic to the area;
- Procedures for watering the planted areas (frequency of watering, methodology proposed etc.);
- An indication of the monitoring procedures that will be put in place to ensure the successful establishment of the plants (duration and frequency of monitoring, proposed criteria for declaring rehabilitation as being successful).
- Procedures for the prevention of the establishment and spread of alien invasive species.

Contractors will be responsible for fully rehabilitating any area disturbed by their activities outside the construction footprint, and this responsibility will extend to the maintenance of acceptable vegetative cover in these areas, as specified below, for a full 12-month period.

11.9.1 Scope for Rehabilitation

All areas that are disturbed by construction activities must be rehabilitated as soon as possible using appropriate indigenous vegetation. Contractors are responsible to ensure that available topsoil is stockpiled in predetermined designated areas as described in section 5.7 for subsequent use during rehabilitation.

Rehabilitation will also include stabilizing any areas that are cleared or disturbed for construction purposes, which will not be incorporated into open space or buffer zones (i.e. areas that may be developed in the near future). Methods for stabilization shall be indicated in the method statements.

All construction equipment and excess aggregate, gravel, stone, concrete, bricks, temporary fencing and the like must be removed from site by the contractor upon completion of work. No discarded materials of any nature are allowed to be buried on site.

11.9.2 Landscaping and preparation for re-vegetation

All areas requiring reshaping must be cut, filled and compacted so as to blend with the surrounding landscape. Topsoil removed from the area initially must be replaced and care must be taken not to mix the topsoil with the subsoil during shaping operations. Should a crust form on the soil before re-vegetation the crust must be loosened by scarifying to a depth of 150 mm.

All areas no longer required for construction activities must be rehabilitated as soon as they become available for rehabilitation.

11.9.3 Seeding

Seeding methods shall be included in the Rehabilitation Plan. The method should cover but not be limited to the seed mix, seed application methods (e.g. hydro-seeding), fertilization, and irrigation when rainfall proves inadequate.

When valley thicket or bush-clump sections are rehabilitated, aloes and nurse species are to be planted to facilitate the recovery process. The use of anti-erosion compounds should be considered on slopes where there is a risk of erosion.

11.9.4 Acceptable Cover

Acceptable cover shall be deemed to have been achieved when, in the opinion of an independent ecological specialist, 75% of the grassed area has been covered with mature plants, with no bare areas exceeding one meter squared in maximum dimensions except where rocks prevent such coverage.

11.9.5 Maintenance of Rehabilitated Areas

Contractor liability with regards to maintenance of rehabilitated areas will cease 12 months after acceptable cover has been established over all rehabilitated areas on site providing that acceptable cover is maintained throughout the 12-month period.

Control of the spread of alien species, especially Rooikrans (*Acacia Cyclops)* and Russian Tumbleweed (*Salsola Kali)*, should be managed by monthly monitoring of the area and removal of these seedlings. Monthly monitoring of the area will also allow for modifications to the rehabilitation programme, for example the need to irrigate, sow more seed or fertilise. The rehabilitation programme should be flexible allowing for these modifications.

11.10 Alien Invasive Vegetation Management

The eradication of alien invasive vegetation species shall be done in accordance with the requirements of the Alien Invasive Plant Eradication Plan that has been developed and is currently implemented for the Port of Ngqura. Transnet National Ports Authority is ultimately responsible for the implementation of the Plan. Contractors must however ensure that their works areas remain clear of alien plant species throughout the construction phase. Monitoring the growth of alien invasive vegetation in all works areas shall be undertaken by the Contractor Environmental Officer and shall be ongoing for the duration of construction.

Contractors shall develop a method statement for the eradication and management of alien vegetation within their works areas. The method statement shall include amongst others management measures for fire and the spread of alien vegetation seeds that may be released when vegetation is removed. The method statement must further address the safe, effective disposal of removed vegetation specifically in terms of storm water management.

The use of herbicides on site must be approved by the Provincial Department of Agriculture and recommended by the Endangered Wildlife Trust's Poison Working Group to be environmentally safe.

Two distinct species that occur around the Port of Ngqura are: Russian Tumbleweed (*Salsola kali*) and Rooikrans (*Acacia cyclops*) and methods for clearance are included in the aforementioned plan.

11.11 Rodent Control and Monitoring

TNPA implements and maintains a poison free programme for the control and monitoring of rodent species inside and around the Port. The Port of Ngqura has been declared a poison-free zone and under no circumstances is poison allowed to be used for any purpose inside the Port.

TNPA developed a rodent control and monitoring plan that outlines the requirements for rodent control inside the Port. Contractors shall ensure compliance with the requirements of this Plan. A copy of the Plan can be obtained from Transnet where required.

11.12 Reptile Species of Special Concern

Specific caution shall be taken during construction activities within the Bontveld habitat or any other vegetated area inside or around the Port, to prevent harm to reptiles.

The discovery of any specimens of the Albany Adder should immediately be brought to the attention of the Transnet Project Environmental Manager and Construction Manager who will be responsible for contacting the relevant conservation authorities. Photos of the Albany Adder will be made available to contractors working inside the Port, for easy identification.

11.13 Traffic Management

Contractors shall ensure that the transportation of construction personnel is aligned with current practices in the Coega IDZ. The use of buses and/or mini buses are encouraged to reduce the number of private vehicles on the road network.

Material delivery to site should be done using large vehicles or truck-trailer combinations where practical to reduce the number of trucks on the road. Overloading of vehicles should be avoided to limit the impact on the structural capacity of roads.

Well maintained, roadworthy vehicles shall be used together with sufficiently trained and licensed drivers. Monitoring of vehicle maintenance and driver competency shall be undertaken in accordance with the requirements of the Transnet Health and Safety Project Specification.

Vehicles are not permitted to leave access roads. Turning of vehicles should only take place within a clearly demarcated "turn area" located within the approved construction footprint.

The contractor must co-ordinate the loading and offloading of material during the construction phase so as to ensure that vehicular movement is in one direction only at any one time and that side-tracks are not created on the site.

Vehicles should only be parked within designated parking areas as demarcated on the site layout plan.

11.14 Emergency Preparedness and Response

Contractors shall compile and maintain environmental emergency procedures to deal with incidents and accidents, together with appropriate response procedures, for application throughout construction. The emergency response procedures must include, but not be limited to fires and spillages of hazardous substances on the ground or in water. The Procedure must be submitted to the Transnet Construction Manager and Environmental Officer for approval.

Contractors shall be responsible for the implementation and revision (when required) of the emergency preparedness and response procedures and must ensure that all incidents are recorded in a register. The incident register must be kept up to date and made available for audit purposes.

11.15 Oil Spill Contingency Plan

TNPA has developed and continues to implement an oil spill contingency plan for port operation, in accordance with the National Contingency Plan for the Prevention and Combating of Pollution from Ships and Offshore Installations. The plan defines the areas of responsibility and the preparatory activities required prior to an incident and the response actions to be initiated after an oil spill has occurred in the Port of Ngqura.

Contractors are required to submit a detailed environmental method statement for the storage and handling of hydrocarbons and refueling of plant and equipment for review and approval by the Transnet Construction Manager and Environmental Officer. The method statement must adequately address measures to prevent, manage, contain and clean-up spills on land and in water. The method statement must take cognisance of the requirements of the aforementioned Ngqura Harbour Spill Contingency Plan, to be obtained from the Transnet Environmental Officer or Project Environmental Manager.

Oil spill kits and equipment shall be available in all works areas and shall be regularly maintained and replaced where required.

All Vessels operating within the Port for construction purposes including delivery vessels and dredgers must have a detailed spill control plan on board as well as adequate materials and equipment to respond to and clean up spills.

11.16 Ballast Water Management

TNPA developed and implements a Ballast Water Management Plan for the Port of Ngqura. The plan clearly describes the International Maritime Organization's Guideline requirements for ballast

water management. All Vessels operating within the Port for construction purposes including delivery vessels and dredgers will be required to adhere to the requirements of this plan at all times.

Prevention of alien organisms introduced through ballast water can be dealt with in various ways. Contractors must submit method statements for ballast water management. The method statement must include specifications for emptying and cleaning of ballast water tanks while en-route to, and still outside of South African territorial waters.

A copy of the Port of Ngqura Ballast Water Management Plan will be provided to relevant contractors and must be incorporated into the required method statements.

11.17 Fishing in the Port

Contractors should take note that fishing and/or removal of any marine life within the port boundaries are not permitted. This requirements must be communicated to all workers, sub-contractors, vendors and service providers.

11.18 Access to Islands

Uncontrolled access to any of the three Algoa Bay islands is prohibited. No unauthorized visits to the islands will be allowed.

Port Control is responsible for reporting any potentially illegal or unauthorized access to South African National Parks (SANParks) and the relevant authorities, including the TNPA Environmental Management Department.

11.19 Impact on Birds

Where construction activities require blasting the relevant contractor must ensure adherence to blasting guidelines for the Port. This should ensure that injury to birds is kept to a minimum.

Construction works, especially blasting, dredging, and other noisy activities, must be carefully planned and controlled to avoid disturbance of the breeding bird populations on the nearby Islands.

Lighting in works areas and site camps within the Port must be directed away from the Islands and other sensitive areas to minimize and/or avoid disturbance of bird populations.

11.20 Environmental Requirements Specific to Dredging

Appointed dredging contractors are required to develop detailed environmental method statements for specific dredging activities inside the Port (including dredging methodology) and the management of dredged material. The method statements must take cognisance of the requirements of this CEMPr (more specifically the Project Environmental Specifications) and must be approved by the Transnet Construction Manager and Environmental Officer.

11.20.1 Transportation and Disposal of Dredged Material

The offshore disposal of dredged material must be carried out in terms of the conditions set out by the London Protocol and the requirements of the National Environmental Management Integrated Coastal Management Act, No 24 of 2008. The dredging contractor shall ensure that the disposal of dredged material conforms to the requirements of the offshore disposal permit, obtained from the Department of Environmental Affairs. A copy of the permit will be made available to the contractor for inclusion into their method statement and must be displayed at all times on the dredger and disposal barges operating within the Port.

The appointed dredging contractor shall keep a GPS record of the route followed by the dredge spoil disposal vessel. This record must include the following data:

- Time of departure from the dredge site;
- Route followed by the vessel (GPS track);
- Time of arrival at the disposal site;
- Position of the vessel at the time of starting to discharge the dredge spoil;
- Heading and speed of the vessel at the time of starting to discharge the dredge spoil;
- Position of the vessel at the time of completion of discharge of the dredge spoil;
- Heading and speed of the vessel at the time of completion of discharge of the dredge spoil; and
- Route followed by the vessel back to the dredge site.

These records must be provided to the Transnet Construction Manager on a daily basis, together with the contractor's daily site diary.

11.20.2 Water Quality Monitoring

Method statements for the monitoring of water quality during dredging and dumping of dredged material must be submitted to the Transnet Construction Manager and Environmental Officer for approval.

These method statements must as a minimum include the following:

- Detailed description of the methodology for water sampling and measurement;
- Detailed information of the water quality sampling and measurement equipment;
- How the contractor will ensure that standards for suspended solid concentrations are not compromised whilst waiting for the monitoring results;
- Contractor and/or consultant responsible for undertaking the required monitoring;
- Details and credentials of laboratory to be used for testing of samples (where applicable);
- Frequency of sampling;

- Response procedures should turbidity or dissolved oxygen start approaching set limits; and

- Provision of monitoring reports.

It should be noted that the water quality standards refer to total suspended solids (TSS). The contractor has the option of monitoring turbidity rather than total suspended solids given that turbidity can be determined in the field. However, should the Contractor choose this option, a key issue to be addressed in the environmental method statements is the establishment of a correlation between TSS and turbidity. This must be completed and agreed to by Transnet prior to the commencement of dredging activities.

The environmental method statements must highlight monitoring procedures for water quality in the vicinity of the dredging activity and during disposal of the dredged spoil. The conditions of the offshore disposal permit, authorizing the disposal of dredged spoil at sea must be acknowledged in the environmental method statement and must be complied with. The impact of the dredging activities on the marine environment must be controlled as much as is practically possible. Dredging activities have the potential to substantially increase the suspended solid concentrations and also to decrease the concentrations of dissolved oxygen in the water column particularly in areas close to the dredger.

A suspended solids (SS) standard has been developed for dredging contracts at the Port of Ngqura to ensure that the environmental impact of dredging is limited. It is the contractor's responsibility to ensure that the SS standard is adhered to.

The SS standards are as follows:

- The maximum acceptable SS concentrations due to dredging activities, as measured at the selected monitoring locations, shall not exceed 150 mg/l above the ambient concentrations except in areas designated as sensitive where the maximum acceptable SS concentration shall be 80mg/l above ambient SS concentration; and

- Once the measurement of 100mg/l above ambient level is attained or exceeded at the general monitoring stations or 50mg/l at the monitoring stations adjacent to any designated sensitive area, the contractor should ensure that the necessary mitigation steps are taken and documented to prevent a further increase in suspended solid concentration, which could lead to suspension of the operation when 150mg/l (general sites) or 80mg/l (sensitive sites) above ambient is exceeded.

It is recognized that the standard may not be met in the immediate vicinity of where the actual dredging activity is taking place at that time. For this reason, the mixing zone shall apply. The extent of this mixing zone is to be agreed upon prior to the commencement of dredging operations.

The general approach for the monitoring of turbidity levels is as follows:

- At each of the monitoring and reference sites, measurements will be collected from three different locations (replicates) in close proximity to each other;

- The measurements will be in the form of a profile, with the replicate readings averaged at each depth;
- The highest average value is the ruling ambient or monitoring value for that site;
- Should the ruling value at any of the general monitoring stations reach 100mg/l above ambient, the contractor must immediately notify the Environmental Manager for nominated representative;
- Should the ruling value at any of the sensitive area monitoring stations reach 80mg/l above ambient, the Contractor must immediately notify the Environmental Manager for nominated representative; and
- If any of the monitoring sites' ruling value exceeds 150 mg/l above the ambient value for that day, operations shall be stopped.

11.20.3 Dissolved Oxygen Levels

Method statements describing the methodology to be adopted for the monitoring of dissolved oxygen concentrations must be prepared and submitted to the Transnet Construction Manager and Environmental Officer for approval. The method statements must include the locations of reference and monitoring sites.

A dissolved oxygen (DO) standard has been developed for dredging at the Port of Ngqura to ensure that the environmental impact of dredging is limited. This threshold is 10% below the ambient DO levels measured outside of the area impacted on by the dredging plume. In terms of the South African Water Quality Guidelines, the minimum acceptable DO concentrations are 5mg/l. This minimum acceptable standard will apply even if ambient dissolved oxygen concentrations drop to less than 5.5mg/l.

It is the Contractor's responsibility to ensure that the DO standard is adhered to. Once the DO levels approach the threshold levels stipulated, the Contractor must ensure that necessary mitigation measures are taken and documented to prevent a further decrease in dissolved oxygen concentrations. Where further decrease in DO concentrations occur, dredging operations in the affected areas must be ceased until such time as the DO levels return to within acceptable levels.

The general approach for the monitoring of dissolved oxygen concentrations is as follows:

- At each of the monitoring and reference sites, measurements (dissolved oxygen levels, salinity and temperature simultaneously) must be collected from three different locations (replicates) in close proximity to each other;
- The measurements must be in the form of a profile, with the replicate readings averaged at each depth;
- The highest average value is the ruling ambient or monitoring value for that site;

- Should the concentrations of dissolved oxygen drop to 7% less than the ambient dissolved oxygen levels the Contractor must immediately notify the Project Environmental Manager; and
- If any of the monitoring sites ruling value exceeds the agreed to standards, operations must be stopped, which is especially important with regard to the monitoring sites close to sensitive areas.

11.21 Port Operational Environmental Management Requirements

TNPA developed and continue to implement an Operational Environmental Management Programme (OEMP) that addresses minimum environmental requirements and matters associated with the operation of the Port.

The OEMP provides the management framework required for the planning and implementation of operational activities, in accordance with the requirements of the environmental authorizations and recommendations contained in the Environmental Impact Reports, as well as legislative requirements.
All contractors and/or vessels entering and operating within the Port of Ngqura for construction or operational purposes are required to comply with the requirements of the Port OEMP that are applicable to their specific activities.

The Ngqura Harbour Masters Office will issue a copy of the OEMP to Shipping Agents and Vessel Captains for implementation. The TNPA Environmental Management Department will issue a copy of the OEMP to all contractors working within the Port.

11.22 Non-compliance by Contractor

Transnet can initiate a non-conformance for any non-compliance with environmental specifications and approved method statements. All non-conformances must be responded to within a 48-hour period depending on the severity of the non-conformance.

All internal non-conformances initiated by Transnet will be communicated to the ECO. All external non-conformances initiated by the ECO will be communicated by the Transnet Project Manager to relevant contractors and sub-contractors.

If a contractor fails to respond appropriately to a non-conformance, Transnet may have the situation remedied by an outside contractor and back charge the costs of the work to the responsible contractor.

12. Environmental Monitoring Programmes

Transnet and/or a nominated representative shall in terms of the requirements of the project environmental authorisation and associated environmental specialist recommendations as well as relevant legislation, implement various environmental monitoring programmes that shall either commence prior to and / or continue for the duration of the construction phase of the project where required. These monitoring programmes shall amongst others include:

12.1 Dust Monitoring

This monitoring requirement may be delegated to contractors undertaking specific works on site and will form part of the contractor works information. In such instances the contractor will be required to develop and describe the proposed methodology and equipment to be used as part of the environmental method statement for air quality and dust management.

An overall monitoring schedule will be developed by the Transnet Project Environmental Manager and Environmental officer for implementation by appointed Contractors. The Schedule will specify the frequency of monitoring and specific monitoring requirements. As such, the monitoring schedule will be a working document and will be amended and updated where required.

Contractors shall undertake daily visual dust monitoring that will be recorded in a monthly dust monitoring register and accompanied with photo records where required. Visual dust monitoring will include the recording of dust levels (low, medium or high), the source of dust generation, type of dust, direction of moving dust plumes and whether the dust event is localized or widespread.

Contractors may be required to monitor monthly dust fallout in accordance with an approved Standard. Monitoring shall commence with site establishment and prior to any bush clearing activities. The need for ongoing monitoring may be amended based on the monitoring results.

Contractors are required to comply with the requirements for dust management as stipulated in this CEMPr and must report excessive dust incidents to the Transnet Environmental Officer and Construction Manager.

12.2 Storm Water Quality Monitoring

This monitoring requirement may be delegated to contractors undertaking specific works on site and will form part of the contractor works information.

In such instances the contractor will be required to develop and describe the proposed methodology and equipment to be used as part of the environmental method statement for the control and management of storm water during construction. The Contractor must take note of the following when developing the method statement:

- Quality of storm water discharge must be monitored at intervals to be agreed with the Transnet Construction Manager and Environmental Officer, but shall be done as a minimum prior to any discharges off site after rain events;
- Monitoring shall be undertaken by means of grab sampling or any other method agreed with the Transnet Construction Manager and Environmental Officer and analyzed for specific substances and parameters as specified in Table 4 below.
- Monitoring of the quality of the storm water discharge shall be undertaken at specific points at which the storm water leaves the works areas / site camps.
- Sampling sites shall be selected to best identify any impacts of the construction works on the receiving environment.

- The methods for the measurement of specific substances and parameters in storm water must be carried out:
    - By a laboratory that has been accredited under the South African national Accreditation System (SANAS) in terms of the SABS Code 0259 for that method;
    - As approved in writing by the Transnet Construction Manager and Environmental Officer by means of an environmental method statement submission.
- Storm water quality monitoring requirements in terms of this CEMPr have been developed and aligned with the requirements of the National Water Act, 1998 (Act No. 36 of 1998).
- Storm water quality monitoring parameters and allowable limits in terms of this CEMPr are as specified in the table below. The contractor shall ensure that discharges from site camps and works areas do not exceed the limits as specified.
- All monitoring results will be reported to the EMC at the quarterly EMC meetings.

Table 4: Storm water quality monitoring parameters

Substance / Parameter	General Limit
pH	5,5 – 9,5
Chemical Oxygen demand (mg/l)	75
Suspended solids (mg/l)	25
Chlorine as free Chlorine (mg/l)	0,25
Electrical Conductivity (mS/m)	70mS/m to 150mS/m
Soap, Oil or Grease (mg/l)	2,5

Where any of the above general limits are exceeded additional monitoring of specific parameters as specified by the National Water Act may be required.

In addition to the above, Contractors shall be required to:

- Visually inspect all storm water discharges at site camps and works areas during wet weather to identify potential sources of storm water contamination and observe water quality;
- Visually inspect site camps and works areas as a minimum monthly to identify authorized and unauthorized non-storm water discharges;
- Inspect site camps and works areas to evaluate the effectiveness and implementation of storm water pollution prevention practices.

Storm water monitoring programmes during construction may be required to make provision for the establishment of a baseline dataset that will be comparable to that of the Core Development Area of the Coega IDZ, and available relevant datasets of the NMBM where relevant. Where baseline datasets already exist, these shall be made available.

12.3 Noise Monitoring

Noise monitoring shall be conducted during the construction phase of the project to determine if noise emissions are within prescribed limits.

The contractor shall be required to undertake noise monitoring in line with the requirements of this CEMPr. Contractors should take note that noise monitoring requirements may not be relevant

to all scopes of work during construction. Noise shall be monitored using an integrated portable sound level meter complying with relevant standards and specification. The meter shall be calibrated as per the manufacturer's specifications and or legal requirements and the calibration certificate shall be provided to the Transnet Environmental Officer.

Noise levels shall be measured by the contractor at sampling points identified in consultation with the Transnet Construction Manager and Environmental Officer. Noise generated within the general construction footprint (away from sensitive receptors) shall be monitored to ensure compliance with the requirements of the Nelson Mandela Bay Metropolitan Municipality Noise Control Bylaw.

The frequency of monitoring may be decreased or increased at the discretion of the Transnet Construction Manager and Environmental Officer over the construction period, depending on changes in construction methodology and the type of plant and equipment operating on site. Monitoring frequency may only decrease if monitoring data / results show minimal variation in noise levels.

Whenever noise measurements are taken, meteorological data (wind speed and direction, ambient temperature, cloud cover, humidity, barometric pressure) should also be recorded as close to the site as possible.

12.4 Archaeological Monitoring

Transnet shall appoint a suitably qualified Archaeologist to actively monitor the project footprint for the presence of archaeological sites/materials during and after completion of vegetation clearance.

The Archaeologist will be required to report concentrations of archaeological material that may be uncovered (e.g. human remains, and/or accumulations of fossil bone, concentrations of marine shell and stone tools) to the relevant/responsible Authorities and will conduct a systematic and professional investigation of all material uncovered.

A sampling and monitoring permit will be applied for and obtained to remove heritage objects/artefacts from the site where necessary.

12.5 Palaeontological Monitoring

Transnet shall appoint a suitably qualified Palaeontologist to monitor all excavations during construction deeper than 2m for newly exposed fossil material. The Palaeontologist will be required to record and sample fossil material and associated geological data (e.g. sedimentary context), where required and report any concentrations of paleontological material uncovered during construction to the relevant/responsible Authorities.

A sampling, monitoring and collection permit will be applied for and obtained to remove paleontological material from the site where necessary.

12.6 Marine Mammal Monitoring

Contractors operating/undertaking construction work within the Port and in close proximity to the water shall be required to undertake Marine Mammal Monitoring. Monitoring shall be undertaken in accordance with the Port of Ngqura Marine Mammal Monitoring Plan and shall be done daily by means of visual sightings and recording. Monitoring shall include the noting of species (where possible), approximate numbers sighted and date of sighting. A Copy of the Plan shall be made available to contractors where relevant to their specific activities.

13. Evaluation of Compliance

13.1 Compliance Monitoring

All construction activities shall be monitored in terms of the requirements of this CEMPr. Environmental monitoring is required to ensure that the CEMPr and the environmental management requirements contained therein are effectively implemented.

Scheduled environmental monitoring of environmental performance and compliance with the requirements of the project environmental authorisation and the CEMPr is required throughout the construction phase of the Project. Compliance monitoring allows for the overall effectiveness of the environmental controls to be determined and for areas of non-compliance to be identified so corrective actions can be implemented.

Environmental monitoring (in line with the requirements of the Environmental Authorisation) will take place prior to construction to assess the baseline conditions, during construction to assess the impact of the construction on the environment, and after construction to assess the impact of the completed Project. Environmental monitoring is required at various stages of construction for various environmental aspects. The overall monitoring requirements are included in Section 5 of the CEMPr.

13.1.1 Contractor Monitoring Requirements

Contractors are required to submit an Environmental Monitoring Method Statement which details the scope, nature, process, schedule and templates for environmental monitoring.

The monitoring results shall be used to determine the effectiveness of the CEMPr implementation. Monitoring results and the associated required management and mitigation actions for the coming monitoring period are to be presented in the monitoring section of the Contractors Monthly Environmental Report.

The daily and weekly environmental reports must detail observations and information relating to requested management actions and their effectiveness. The Contractor shall monitor and maintain inter alia the following on an on-going basis:

- (Re-)growth of alien invasive vegetation;
- Storm water systems;
- Topsoil and material stockpile volumes;

- Access road condition;
- Dust;
- Noise;
- Water Quality;
- Erosion prevention;
- Rehabilitation requirements;
- Rehabilitation interventions;
- Spoil management.

13.1.2 General Site Monitoring

- Daily: The Contractor and Transnet Environmental Officers will undertake daily inspections of all works areas and activities on site and any issues identified will be noted. These inspections are informal visual inspections in order to check compliance with the CEMPr. Daily inspection checklists can be developed and implemented for this purpose;
- Weekly: Formal site inspections will be undertaken by the Contractor and Transnet Environmental Officers together with the Transnet Project Environmental Manager. Site specific checklists will be developed for this purpose to check compliance with the CEMPr and project environmental authorisation. Issues that present a significant environmental risk will be noted. Weekly compliance monitoring and inspections will be undertaken by the appointed independent Environmental Control Officer (ECO). Findings and observations made by the ECO during these inspections will be communicated on the day of the inspections where required and will be recorded in the ECO monthly report.
- Monthly: The Transnet Environmental Officer will undertake monthly site inspections with the Transnet Project Environmental Manager to confirm that environmental monitoring programmes and environmental control procedures are being implemented in accordance with the CEMPr and project environmental authorisation requirements. These visits can be combined with the monthly contractor environmental compliance audit.

13.2 Site Environmental Inspections and Audits

Environmental inspections and audits are conducted using five basic techniques. These include:

- Interviews with Contractor's staff including Sub-contractors and suppliers;
- Document checks;
- Observations;
- Monitoring;
- Measurement and verification.

This document sets out the areas and aspects of the construction site that will be inspected or audited, the frequency of such audits, the auditor and auditee.

It should be noted that these lists are not exhaustive and that each site will have specific issues that will need to be audited.

13.2.1 Workplace Inspections

The Contractor's Environmental Officer will be required to conduct weekly inspections of all work places for which the Contractor is responsible, including but not limited to the following:

- Contractor's camp, recreational and canteen facilities;
- Material lay down areas;
- Liquid and solid waste storage facilities (general, hazardous, recycling and scrap);
- Workshops;
- Oil traps;
- Wash bays;
- Construction work area;
- Spray Booths;
- Haul roads;
- No-go areas;
- Storm water drains;
- Any other construction area for which the SHE Officer is responsible.

At each of these sites, the Contractor's Environmental Officer will be required on a daily basis to check for the following, where relevant:

By observation:

- Litter;
- Separation of solid waste as per system;
- Hydrocarbon spills;
- Effectiveness of dust control measures;
- Illegal washing out of containers in drains;
- Wash bay drainage systems are working;
- Correct usage of drip trays;
- Effectiveness of oil separators;
- Water use and wastage;
- Pollution of rivers and sea;
- Provision and use of toilet facilities;
- Any other illegal activities.

By document check:

- Removal of oil for recycling as per schedule;
- Removal of packaging as per agreements with suppliers;
- Removal of hazardous waste by specialist Contractors as per schedule;
- Correct placement of environmental signage and posters;
- Document board listing emergency numbers, hazmat info sheets, etc.

The following records must also be kept up to date (information must include that of sub-contractors where relevant):

- Fuel consumption for entire contract measured in litres (including plant, generators, other equipment, vehicles etc.);
- Electricity consumption for entire contract measured in Watt hours;
- Quantities of general waste submitted for recycling measured in kilograms;
- Quantities of general waste disposed of to landfill measured in kilograms;
- Quantities of hazardous waste submitted for recycling measured in kilograms;
- Quantities of hazardous waste disposed of to landfill measured in kilograms;
- Water consumption, including water used for construction and human consumption measured in litres.

13.2.2 Construction Site Audits

The Transnet Environmental Officer will be required to conduct monthly inspections and audits of the entire construction site, which may involve more than one Contractor and may include, but not be limited to the following:

- Entire site
- Fencing
- Environmentally sensitive areas
- Contractor's camp, recreational and canteen facilities
- Material lay down areas
- Scrap yard
- Workshops
- Oil traps
- Wash bays
- Sewage plant
- Quarries and borrow pits used for fill and construction material
- Spoil dumping areas
- Solid waste disposal areas
- Liquid waste disposal areas
- Bioremediation site
- Area for the temporary storage of hazardous waste
- Fuel depot and hydrocarbon storage areas
- Construction work area
- Concrete batching plant
- Spray booths
- Haul roads
- No-go areas
- Storm water drains
- And any other construction areas not listed

At each of these sites, the Transnet Environmental Officer will be required to check for the following, where relevant:

By observation:

- Litter;
- Separation of solid waste as per system;
- Hydrocarbon spills;

- Use of bunding, hard standing and other protection measures;
- Illegal dumping;
- Effectiveness of dust control measures;
- Illegal washing out of containers in drains;
- Wash bay drainage systems are working;
- Correct usage of drip trays;
- Effectiveness of oil separators;
- Illegal use of tracks and off-road driving in no-go areas;
- Correct procedures are followed for topsoil removal and stockpiling;
- Effectiveness of erosion protection measures;
- Excess noise and vibration;
- Water use and wastage;
- Pollution of the Coega River and Sea;
- Provision and use of toilet facilities;
- Any other illegal activities;

By document check:

- All receipts for the collection of old oil, general recycled waste and hazardous waste;
- Correct placement of environmental signage and posters;
- Document board listing emergency numbers, hazmat info sheets, etc.;
- Complete and accurate record of Contractor's Environmental File.

By measurement:

- Amount of water used by each Contractor (where practical);
- Amount of topsoil removed and stockpiled;
- Amount of land stabilisation completed;
- Area re-vegetated;
- Amount of waste recycled, sent to scrap yard or disposed in dump;
- Amount of material treated in the bioremediation site.

By monitoring:

- Effectiveness of dust control systems;
- Effectiveness of pollution control systems;
- Effectiveness of rehabilitation and re-vegetation programmes;
- Effectiveness of erosion control methods;
- Effectiveness of noise control barriers.

A site-specific inspection checklist will be provided to the Transnet Environmental Officer prior to site establishment.

13.2.3 Construction Site and Documentation Compliance Audit

The Transnet Environmental Specialist: Assurance will conduct quarterly audits of the entire construction site and documentation system, which may include, but not be limited to the following:

- Site entrance;
- No-go areas;
- Environmentally sensitive areas;
- All work areas;
- Liquid and Solid waste storage facilities;
- All workshops;
- Refuelling depots;
- Contractor's camp area and lay down place;
- Any other place which needs to be audited.

By observation:

- Litter;
- Liquid and Solid waste storage facilities;
- Hydrocarbon spills;
- Use of bunding, hard standing and other protection measures;
- Illegal dumping;
- Effectiveness of dust control measures;
- Illegal washing out of containers in drains;
- Wash bay drainage systems are working;
- Correct usage of drip trays;
- Effectiveness of oil separators;
- Illegal use of tracks and off-road driving in no-go areas;
- Correct procedures are followed for topsoil removal and stockpiling;
- Effectiveness of erosion protection measures;
- Excess noise and vibration;
- Water use and wastage;
- Pollution of rivers and sea;
- Provision and use of toilet facilities;
- Any other illegal activities.

By document check:

- Complaints register is available and up to date;
- Method Statements are filed correctly and up to date;
- All environmental permits are available;
- Copy of the EA is available on site;
- Copies of the CEMP, SES and PES are available on site;
- Copies of all daily, weekly inspections and audits, monthly reports, minutes, incident reports and corrective action reports are filed correctly;
- Copies of all close-out reports are available;
- The monitoring programme is being adhered to and the monitoring results are no more than one month late;
- Chains of custody for samples can be provided on request;
- Sampling protocols are followed;
- Emergency numbers and procedures are clearly displayed;
- Photographic record;
- Records of Environmental Awareness Training of Contractor's staff;

- Any other documentation necessary to ensure effective environmental management of the site.

By verification (if necessary):

- Spot samples to check water quality (e.g. storm water runoff);
- Map/plan measurements to check areas disturbed/re-vegetated;
- Check dust collection buckets are working;
- Check oil separators;
- Any other aspect which gives cause for concern.

By interview:

- Transnet Environmental Officer;
- Contractor's Environmental Officer;
- Contractor's staff at random.

A specific site audit protocol will be formulated prior to the first audit and sent to the Transnet PEM two weeks in advance of the quarterly audit.

13.3 Environmental Audits

Environmental audits will be undertaken to determine compliance with the CEMPr and the project environmental authorisation. These audits will identify how non-compliances can be adequately corrected and will provide feedback on how to improve construction related activities where required. Environmental Audits shall be conducted at regular intervals to verify compliance with the CEMPr.

The following shall be checked as a minimum:

- Compliance with the project environmental authorisation;
- Compliance with the requirements of relevant environmental legislation;
- Compliance with conditions of other relevant permits and licenses;
- Adequacy and effectiveness of monitoring programmes;
- That environmental procedures are implemented and adhered to;
- That environmental training records are up to date and in order;
- That environmental reporting systems are in place;
- That environmental incidents are recorded and corrective actions implemented;
- That environmental targets are being achieved.

Findings of audits and required changes and responses to the findings shall be discussed and the implementation thereof agreed upon at scheduled meetings. All inspection and audit reports shall be documented and recorded. Relevant parties shall be required to respond to and address issues identified through site inspections, monitoring and auditing processes.

13.3.1 Independent Environmental Audit

Bi-annual environmental compliance audits will be undertaken by the appointed independent Environmental Control Officer to verify Transnet's compliance with the conditions of the project environmental authorisation, CEMPr and other relevant environmental legislative requirements. Audit findings will be reported to the Coega Environmental Monitoring Committee and the relevant DFFE Directorate.

13.3.2 Final Environmental Compliance Audit and Reporting

Transnet shall ensure that a final independent environmental compliance audit is undertaken and an environmental audit report submitted to the relevant DFFE Directorate within 30 days of completion of the construction phase of the project and within 30 days of completion of rehabilitation activities. The environmental audit report shall indicate the date of the audit, name of the auditor and the findings of the audit in terms of compliance with the environmental authorization conditions and the CEMPr.

A Final Environmental Compliance Report shall be compiled by the Transnet Environmental Officer for submission to the Transnet Project Manager at the end of the construction phase of the project. The report will include details of:

- The completion of all environmental conditions and mitigation measures listed in the CEMPr;
- All environmental incidents and completed corrective actions;
- The findings of the Environmental Audits;
- Conclusions as to whether environmental constraints, guidelines, norms and stipulations have been met and, if not, reasons why they have not been met;
- An indication of the outcomes of the environmental monitoring conducted;
- All Monthly Environmental Monitoring Reports (as an attachment);
- A copy of all Method Statements (as an attachment);
- A copy of the environmental Incident and NCR Registers; and
- A copy of the Communications Register.

13.4 Environmental Performance Criteria

Contractors must achieve the minimum requirement for environmental audits. The standard/minimum requirement for all environmental audits is 80% and where a compliance score of less than 80% has been achieved, non-conformance reports (NCRs) will be issued to the Contractor.

13.5 Environmental Non-Conformance Reports

Transnet can institute a non-conformance for any non-compliance with the requirements of the CEMPr. The timeframe for mitigating a non-conformance shall be determined by the severity of

the non-conformance. All non-conformances will be recorded in a register and made available for audit purposes. Where non-conformances are not appropriately responded to, Transnet may have the situation remedied by an outside service provider and back charge the cost of the work to the responsible contractor(s).

In the event of a non-conformance being issued, the following recommended process shall be followed:

- Transnet shall issue a notice of non-conformance to the responsible party, stating the nature and magnitude of the non-compliance;
- The responsible party shall be required to correct the non-conformance within the required timeframe or within a period that may be specified within the notice;
- The responsible party shall provide Transnet with a written statement describing the actions that will be implemented to rectify the non-conformance, the actions taken to mitigate its effects and the expected results of the actions.

Transnet shall have the right to stop work and/or certain activities in the case of non-compliance or failure to implement corrective actions, and deal with any non-compliance and/or non-conformance in terms of the applicable mechanisms and legislation. All delays resulting from such suspension of works shall be at the Contractor's expense.

A non-conformance may be issued to the Contractor by the Transnet Construction Manager/Environmental Officer where:

- The incident response procedure (including administrative requirements) were not successfully implemented; or
- There are repeated incidents because of inadequate environmental practices on site;
- Documentation required to comply with the CEMPr is not prepared or maintained adequately on site; or
- Any non-compliances with the requirements of the Environmental Authorisation and the CEMPr are identified.

14. Forms and Templates

Applicable Forms and Templates will be developed as part of the Construction Environmental Management System for the Project for implementation by appointed Contractors. These forms and templates will be maintained by the Transnet Document Management Department and will be revised as and when required.

15. Records

All environmental records and documents generated as part of the construction phase of the Project will be managed in accordance with the Transnet Document Management Procedure for the retention of Records.

Annexure A

Contents for Contractors Environmental Files

Annexure B

Declaration of Understanding

Annexure C:

Contractor Environmental Officer Appointment

PORT ROD

MINISTRY: ENVIRONMENTAL AFFAIRS AND TOURISM
REPUBLIC OF SOUTH AFRICA
Private Bag X447, Pretoria, 0001, Tel: (27-12) 310 3611, Fax: (27-12) 322 0082
Private Bag X9154, Cape Town, 8000, Tel: (27-21) 465 7240/1/2, Fax: (27-21) 465 3216

Ref: 03/2/4
A24/16/3/56

Ms M Mondi
National Ports Authority of South Africa
P O Box 32696
BRAAMFONTEIN
2001

Dear Ms Mondi

DECISION ON APPEALS REGARDING THE PROPOSED DEVELOPMENT OF THE PORT OF NGQURA

I refer to your appeal dated 19 December 2001, and your supplementary information dated 22 April 2002 that the Coega Development Corporation has submitted in terms of section 35 of the Environment Conservation Act, 1989 (Act No.73 of 1989), in respect of decision of the Director-General dated 21 November 2001 regarding this development.

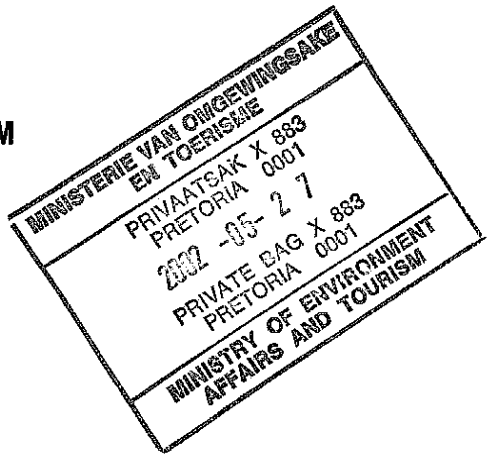
I have evaluated all the appeals submitted to me and by virtue of the power vested in me in terms of section 35 (3) of the Environment Conservation Act, 1989, I hereby:

(1) Uphold the initial decision of the Director-General,
(2) Uphold the appeals against the following conditions: 1.9; 2.1; 2.2; 2.3; 2.4; 2.7; 2.12; 2.14; 2.19; 2.20; 2.22; 2.23; 2.25; 2.26; 2.29; 2.30; 2.52; 2.56 and 2.57,
(3) Excise and or vary the conditions listed in 2 above.

(4) Dismiss the appeals against conditions 1.4; 2.18 and 2.56.

Yours sincerely

M V MOOSA
MINISTER OF ENVIRONMENTAL AFFAIRS AND TOURISM
DATE: 27/5/02



REVISED RECORD OF DECISION IN TERMS OF SECTION 22 (3) OF THE ENVIRONMENT CONSERVATION ACT, 1989 WITH REGARD TO THE UNDERTAKING OF AN ACTIVITY DESCRIBED BELOW AS REQUIRED BY GN R. 1183 OF 5 SEPTEMBER 1997.

REFERENCE NUMBER: A24/16/3/56

BRIEF DESCRIPTION OF ACTIVITY:

The project entails the construction of a deep-water port on the mouth of the Coega River estuary by the National Port Authority of South Africa (NPA). The harbour will have two breakwaters, with the main breakwater extending more than two kilometres into the sea, while the lee breakwater will be approximately 1km long.

Five berths will be constructed initially, with two berths each being allocated to the container terminal and dry bulk materials facility and one to a bulk liquid materials facility. The main construction activity associated with the building of the marine infrastructure is the dredging of the approach channel and turning basin; construction of the quay walls and breakwaters; land excavation to create the area for the container terminal and transport corridor and the resulting transport of material to the east headland deposition site; and the building of a sand bypass scheme.

The main land based activities involve the development of infrastructure and service facilities for the future Industrial Development Zone (IDZ) tenants and port users. This will involve preparing sites, transport routes, water and electricity services, waste sites and telecommunications. The landside development is envisaged to encompass a custom secure logistic park, an E-commerce park, areas designated for port related activities and allied industries, mixed-use corridor and electronic and technical clusters.

LOCALITY:

Province: Eastern Cape
Magisterial District: Nelson Mandela Metropole
Farm Name: Coega River Mouth, Neptune, Swartkoppen and Wells Estate
Nearest Town: Port Elizabeth

APPLICANT:

National Ports Authority of South Africa
P O Box 32696
BRAAMFONTEIN
2001

Contact person: Ms M Mondi
Tel: (011) 242 4105
Fax (011) 242 4260
Cell: 082 308 4670

CONSULTANT:

Coastal & Environmental Services
P.O Box 934
GRAHAMSTOWN
6140

Contact Person: Dr Angus Paterson
Tel: (046) 622 2364
Fax: (046) 622 6564

DECISION:

Authorisation is granted in terms of Section 22 (3) of the Environment Conservation Act, 1989 (Act No. 73 of 1989) to construct and operate the Port of Ngqura. This authorisation is granted subject to the conditions outlined below.

1. STANDARD CONDITIONS:

1.1 This authorisation refers only to the activity as specified and described above. Any other development associated with this project and listed under section 21 of the Environment Conservation Act, 1989 (Act No. 73 of 1989) is not covered by this authorisation, and must therefore comply with the requirements of the Act and Government Notice R. 1183.

1.2 Authorisation is granted in terms of Section 22 of the Environment Conservation Act, 1989 (Act No.73 of 1989). This authorisation does not exempt the holder from compliance with any other applicable legislation.

1.3 In the event of non-compliance by any contractor implicated in this activity, the NPA will be held liable for environmental damage.

1.4 The National Ports Authority (NPA) must in the event of material non-compliance with any condition of this authorisation inform the Department within 48 hours.

1.5 A performance-based requirement with regard to environmental impact management, must be included in all contracts related to any activity of this authorisation.

1.6 In the event of non-compliance by the contractor, the NPA must institute a penalty.

1.7 The NPA must before construction, notify all interested and affected parties of this record of decision and associated conditions, within 5 (five) working days from the date of receiving this authorization.

1.8 Construction must not commence until 45 days have elapsed since the date of this authorization.

1.9. The NPA must keep an up to date complaints register, which must be produced upon request by the authorities or any member of the public. Any complaint from the public during the construction of any activity associated with this change of land use submitted to the environmental monitoring committee (EMC) must be attended to as soon as reasonably possible. In the event that no satisfactory resolution is attained within 90 working days after the complaint has been lodged, then the EMC must refer the matter, with recommendations, to the Director-General.

1.10 Compliance or non-compliance records must be kept in good order and shall be made available on request by the authorities.

2. SPECIFIC CONDITIONS

2.1 NPA and the Coega Development Corporation (CDC) in consultation with the Director-General of the Department of Environmental Affairs and Tourism shall establish the EMC. The function of the EMC shall be to monitor the NPA's compliance with the conditions of the record of decision. The committee shall consist of representatives from interested and affected parties, the relevant authorities, the CDC and NPA.

2.2 The NPA must implement an environmental management system (EMS) based on both the conditions of this record of decision as well as the mitigation measures proposed in the environmental impact report and the specialist reports Part 2.

2.3 This project is authorized on condition that both the construction and operation environmental management plans (EMPs) are compiled and submitted to this department as well as to the relevant provincial department for authorization. The construction EMP must form part of the contract documentation for contractors appointed for the construction phase.

2.4 The NPA must appoint an independent environmental control officer (ECO), whose sole responsibility will be to ensure that the EMPs are implemented. The ECO will be responsible to produce periodic audits on how well the project implementation complies with the project conditions. The name of such an official shall be provided to the authorities for communication purposes. The ECO will report to the EMC.

2.5 A proper environmental education programme must be compiled and implemented for all contractors and sub-contractors working on the project, to the satisfaction of the EMC.

2.6 The activities of all contractors and sub-contractors must be incorporated into the EMP, and they must be made aware of the content of all conditions pertaining to this authorisation.

2.7 Should closure of the salt works and or the abalone farm be a necessary option, the NPA must ensure that the retrenched workers of these industries as well as the relocated communities are retrained and receive preference during recruitment of personnel for both the IDZ and the port development.

2.8 The NPA, together with all other stakeholders whose operations are likely to impact negatively on the marine life of Algoa Bay, must submit a strategic plan indicating their commitment towards financially and logistically facilitating the establishment of the seabird and marine mammal rehabilitation centre before operation of the port commences.

2.9 The NPA must implement the oil spill contingency plan before operation commences.

2.10 The co-management structure between NPA and the CDC must be formalised to ensure a compatible approach to managing the entire project. In this structure, clear indications of liabilities and responsibilities must be specified, prior to construction.

2.11 The CDC and NPA must identify all users of the Algoa Bay near shore water and accommodate their needs in the management plan, before construction and dredging commence, to avoid among other things, possible loss of income and occurrences of accidents.

2.12 The NPA must ensure that an alien invasive eradication plan is formulated and implemented. This will also entail the implementation of weed control measures through manual and mechanical means. Any use of herbicides should be cleared with the Provincial Department of Agriculture.

2.13 A management plan must be developed before the operational phase of the port by the NPA to ensure that the management of ballast water avoids pollution and the introduction of biological marine contamination through introduced organisms.

2.14 The NPA must facilitate the establishment of the necessary licensed general and hazardous waste disposal sites. The local authorities as well as the Department of Water Affairs and Forestry must be consulted regarding the identification and the suitability of such sites. The cost for the maintenance of the sites must go to the NPA.

2.15 All areas to be disturbed as a result of the implementation of this activity must be rehabilitated as soon as possible using appropriate indigenous vegetation. Available topsoil must be stockpiled for subsequent use during reclamation activities.

2.16 Utilisation and destruction of plant and animal species must be carefully monitored, managed and controlled to prevent destruction of protected, scares and red data listed species. In the event of possible destruction of these species an ecologist must be appointed to identify and relocate, where possible, affected plant species to sites identified

in consultation with the environmental control officer (ECO) and the relevant provincial department.

2.17 The remaining patches of both the Bontveld vegetation and the Messic Succulent Thicket must be fenced off and protected from mechanical destruction and infestation with alien vegetation prior to construction. Every effort must be made to avoid degradation of Bontveld within the port limits.

2.18 The NPA must ensure that the Duthies golden mole and Pygmy hairy-footed gerbil occurring in the dune habitats in the Coega area are included in the relocation and management plan to the satisfaction of the relevant provincial environmental department.

2.19 The NPA must comply with the recommendations of the scientific study entitled "*Impact Assessment of the Coega Harbour on the fishing activities, estuaries and phytoplankton production in the Algoa Bay*".

2.20 A proper fire contingency plan before compiled and implemented. The relevant authorities must approve fire contingency and management plans before construction commences.

2.21 Although fragmentation of habitats will definitely occur, viable corridors must be determined with the relevant provincial environmental department and maintained between habitats to allow migration of animals.

2.22 The NPA must undertake regular monitoring of the groundwater, surface water and near shore seawater in accordance with an approved monitoring strategy. Should there be any evidence of contamination, appropriate mitigation action must be implemented immediately to rectify the situation. This must form part of the EMS.

2.23 The NPA must obtain the necessary dredging permit from the DEAT Directorate, Marine and Coastal Management before construction can start.

2.24 A detailed monitoring plan must be compiled and implemented to ensure that the predators do not reach the Jahleel Island.

2.25 Uncontrolled access to this island, and the other islands in the bay, is prohibited. Any access must be authorised by the relevant authority.

2.26 The occurrence and movement of marine mammals in the proximity of the harbour must be monitored and documented. Measures to avoid collisions with them, and to limit their disturbance, during construction and operation of the harbour, must be put in place.

2.27 Construction works, especially blasting, and other noisy activities, must be limited during breeding season of birds on the islands. A detailed management plan in this regard must be compiled prior to construction in co-operation with, and to the satisfaction of the relevant provincial authorities and MCM.

2.28 The NPA must plan for the eventuality of the increase in the number of vessels in Algoa Bay, to avoid possible collision between ships and between ships and marine animals.

2.29 All provisions of the National Heritage Act, 1999 (Act No. 25 of 1999) must be complied with to protect any wrecked vessels of in the area

2.30 All provisions of the National Water Act, 1998 (Act No. 36 of 1998) must be complied with regarding the flow diversion of the Coega River.

2.31 All provisions of the Health Act, 1977 (Act No. 63 of 1977) as well as provisions of the International Health Regulations Act, 1974 (Act No. 28 of 1974) must be fully complied with. Mr A Van Olm is the contact person of the Provincial Department of Health.

2.32 The NPA must implement a rodent management plan. The implementation of this plan should take the following into consideration:

- Consultation with their neighbours on removal of obstacles, which hampers effective rodent management especially in areas where boundaries and buffer zones to and between land occupants could influence an effective programme.
- The number of dead rodents found should be registered and such statistics made available to the municipality concerned on at least a monthly basis.
- Increases in the number of dead rodents should be reported immediately to the Port Health Officer and the Municipality.

2.33 The Environmental Health Section of the Local Authority must be progressively involved during the commencement of each stage of development, for them to set preventative criteria and to approve, environmental health-wise, the activities to be undertaken.

2.34 Proper HIV/AIDS awareness training must be provided to all workers on site.

2.35 All provisions of the Sea Shore Act, 1935 (Act No. 25 of 1935) and the Atmospheric Pollution Prevention Act, 1965 (Act No. 45 of 1965) must be complied with.

2.36 The provisions of the Forest Act, 1984 (Act No.122 of 1984) must also be complied with.

2.37 As part of the EMS, during each stage of the development, from site preparation to final construction and operation, adequate measures to collect, remove and safely dispose of waste must be instituted for the port, back-of-the-port and the rest of the IDZ area.

2.38 As part of the EMS, a storm water management plan that complies with the Department of Water Affairs and Forestry's standards must be compiled and implemented.

2.39 Before any recycled water is reticulated, proper identification between this system, and those for fresh water, must be instituted to prevent recycled water being used for fresh water.

2.40 Adequate buffer zones between any form of residential area and IDZ must be provided for.

2.41 The NPA must ensure that disturbance of graves are avoided during construction. Graveyards must be integrated in the Coega Development Plan and access to sites shall be provided to the communities.

2.42 The CDC and NPA in collaboration with the Nelson Mandela Metropole must plan for the influx of job seekers to the Coega Development site.

2.43 Uncontrolled settlements of job seekers must be managed to avoid social disruption and environmental damage to the surrounding area.

2.44 In order to limit visual impact of the development on the proposed Greater Addo National Park, the CDC and NPA must appropriately design the harbour buildings, limit lighting and promote the use of screening vegetation. This must be planned in cooperation with the South African National Parks.

2.45 The holder of this authorisation and all contractors must adhere to all provisions of the Occupational Health and Safety Act, 1993.

2.46 The transportation and handling of hazardous substances must comply with all the provisions of the Hazardous Substances Act, 1973 (Act No.15 of 1973) and associated regulations, as well as SABS 0228 and SABS 0229.

2.47 The Best Practicable Environmental Option must be applied to all technologies during construction.

2.48 All mitigation measures stipulated in Chapters 5, 7 and 9 of the environmental impact report become part of this record of decision. Non-compliance with those becomes non-compliance with this record of decision.

3. KEY FACTORS FOR DECISION

3.1 Should the project proponent implement all the mitigation measures as well as the conditions of this authorisation, no fatal flaws will emanate.

3.2 The environmental impact report submitted satisfies the requirements of the Environment Conservation Act, 1989.

3.3 The public participation process undertaken has been extensive and is considered adequate.

3.4 This spatial development initiative (SDI) initiated by the South African Government intends to unlock the economic potential of the Eastern Cape Province through job creation and empowerment of the previously disadvantaged communities by encouraging economic growth.

4. SITE VISIT

The last site visit was attended on 17 August 2001 by the following:

Mr Mpumi Mabula	- Coega Development Corporation
Mr Vincent Matabane	- DEAT
Mr Zain Jumat	- DEAT
Ms Olga Moitsi	- DEAT

5. DURATION AND DATE OF EXPIRY:

If the activities applied for in this permit do not commence within a period of 2 years, this authorisation will be nullified and should the applicant intend to invoke the project, the application procedure as detailed in GN. R 1183 must be followed. This permit is valid for 2 (two) years.

MV Moosa

M V MOOSA
MINISTER OF ENVIRONMENTAL AFFAIRS AND TOURISM
DATE:
27/5/02

STANDARD OPERATING PROCEDURE

CONSTRUCTION ENVIRONMENTAL MANAGEMENT

Document number	009-TCC-CLO-SUS-11386
Version number	1.0
Classification	Unclassified
Effective date	01 October 2023
Review date	30 September 2028

SUMMARY VERSION CONTROL

VERSION NO.	NATURE OF AMENDMENT	PAGE NO.	DATE REVISED
1.0	New Procedure		

Note: Only latest amendments and/or additions are reflected in italics in the body of the document.

DOCUMENTATION SIGN-OFF SHEET

I, the undersigned hereby approve this procedure.

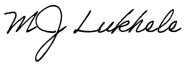
ROLE	CAPACITY/ FUNCTION	SIGNATURE	DATE
Process Owner:	**Senior Specialist: Environmental Compliance and Permitting**		01/10/2023
Accepts document for adequacy and practicability. Comments:			
Sponsor:	**General Manager: Corporate Sustainability**		01/10/2023
Approves document for use. Comments:			

Table of Contents

1. PURPOSE

1.1 The purpose of this Standard Operating Procedure (SOP) is to define how environmental management will be practiced on any construction project under the management of Transnet to ensure that the environment is considered, negative impacts avoided or minimized, and positive impacts are optimized and/or enhanced throughout the lifecycle of the asset.

1.2 It further defines environmental management responsibilities for key stakeholders involved in the construction management process.

1.3 It must be read in conjunction with the Contractor Environmental and Sustainability Specification Guidelines (CESSG) and the Project Environmental Specification (PES) relevant to the project.

1.4 In this document, unless the context clearly indicates otherwise:

- Words importing any one gender shall include the other gender.
- The singular shall include the plural and vice versa; and
- Any reference in this document to legislation or subordinate legislation is to such legislation or subordinate legislation at the date of promulgation thereof and as amended and/or re-enacted from time to time.

2. APPLICABILITY

2.1 The SOP applies to any construction project under the management of Transnet SOC Ltd or its Construction Agent.

3. REFERENCE DOCUMENTS

Name	Applicable Section
Constitution of South Africa, Act 108 of 1996	Section 24 (a) right to an environment that is not harmful to health or wellbeing Section 24(b) (i) right to have environment protected for current and future generations through legislation and measures that prevents pollution and ecological degradation.
Capital Governance and Assurance Policy	Entire document
Capital Governance and Assurance Framework	Entire document
Capital governance and Assurance Manual	Entire document.
PLP Manual – Execution	Entire document
National Environmental Management Act, 107 of 1998	Section 2 National Environmental Management Principles (4) (viii), (e), (h), (j) and (p).
National Water Act, 36 of 1998	Section 164, Permissible Water Use Section 19
National Environmental Management: Waste Act, 58 of 2008	Part 1 15 (1) (i) and (2) Part 6 26 (10 (a) and (b) Scheduled 3, Defined Wastes Category B: Hazardous Wastes Part 8: Contaminated Land
Environment Conservation Act, 73 of 1989	Section 20
Occupational Health and Safety Act, 85 of 1993	Asbestos Regulations, 2001 Government Notice R155 in Government Gazette 23108 of February 2002

Name	Applicable Section
	General Safety Regulations-Reg. 2 (2) PPE
GNR 326, 7 April 2017 as amended, EIA Regulations	Chapter 15
Integrated Management System – Policy Statement Procedure (TRN-IMS-GRP-PROC-002)	Whole document
Integrated Management System – Competency, Awareness and Training Procedure	Whole document
Integrated Management System[1] – Document, Data and Record Management Procedure (TRN-IMS-GRP-PROC-010)	Whole document
Integrated Management System – Occurrence and Non-Conformance Management Procedure (TRN-IMS-GRP-PROC-013)	Whole document
Transnet Environmental Risk Management Strategy and Framework	2015:42
Environmental Management Systems ISO 14001: 2015	Clause 5, 6, 7, 8, 9 and 10

[1] Management of certain documents, data and records will be in accordance with NEC3 – Engineering and Construction Contract prescripts

4. DEFINITIONS AND ABBREVIATIONS

4.1 DEFINITIONS

Compliance	The action or fact of complying with legislation or regulations.
Conformance	The action or fact of conforming to this standard and other internal Transnet policies, procedures, guidelines and best practice.
Contractor	The **Principal Contractor** as engaged by Transnet for infrastructure construction operations, including all sub-contractors appointed by the main contractor of his own volition for the execution of parts of the construction operations; and any other contractor from time to time engaged by Transnet directly in connection with any part of the construction operations which is not a nominated sub-contractor to the Principal Contractor.
Contractor Environmental and Sustainability Specification Guidelines (CESSG)	A set of minimum environmental standards for all Transnet SOC Ltd-managed construction sites.
Corrective Action	It is generally a reactive process used to address problems after they have occurred. Corrective action may be triggered by a variety of events, e.g. Non-conformance to documented procedures and work instructions, non-conformances raised through internal audits, unacceptable monitoring and measurement results, internal & external SHEQ complaints, etc.
Emergency	Sudden unforeseen event needing immediate or prompt action.

Environment	Surroundings in which the Contractor operates, including air, water, land, natural resources, flora, fauna, humans and their interrelations.
Environmental Aspect	Element of an organization's activities or products or services that interacts or can interact with the environment
Environmental Authorisation (EA)	Environmental Authorisation is the authorisation granted by a competent authority of a listed activity or specified activity in terms of National Environmental Management Act 107 of 1998 (as amended).
Environmental Impact	Change to the environment whether adverse or beneficial, wholly or partially resulting from an organization's environmental aspects
Environmental Management Plan (EMP)	A plan generated by the Contractor describing the relevant roles and responsibilities and how potential environmental risks will be assessed and managed including the monitoring and recording thereof.
Environmental Management Programme (EMPr)	A programme that has been approved by the Competent Authority in terms of NEMA, 107 of 1998 stipulating information on any proposed management, mitigation, protection or remedial measures that will be undertaken to address the environmental impacts that have been identified
Environmental Risk	The product of the likelihood and severity of an unforeseen occurrence/incident/aspect and the impact it would have, if realised, on the environment

Incident/Occurrence	An undesired event occurring at work that results in physical harm to a person or death, or damage to the environment, plant and/or equipment, and/or loss of production.
Non-conformance	An action or situation that does not conform to Transnet's SHEQ standards, procedures or legislative requirement(s) and that can be, or lead to, an unacceptable SHEQ incident.
Non-compliance	Contravention to environmental legislative requirements.
Project Environmental Specification (PES)	Describes standards specific to a particular project. Variations and additions to the CESSG are set out in this PES. These would include the EA issued to the project or elements generally drawn from the EA or permits for that project or from specific requirements set by the Transnet Operating Divisions. The PES may also require a more stringent standard to that described in the CESSG if required by the EA or a particular industry code to which Transnet subscribes including any environmental constraints at a construction site.
Sub -Contractor	A person or organisation who has a contract with the contractor to - Construct or install part of the contractors work. - Provide a service necessary to provide the works; or - Supply plant and materials which the person or organisation has wholly or partly designed specifically for the works.

4.2 ABBREVIATIONS

Acronym	Meaning in Full
CESSG	Contractor Environmental and Sustainability Specification Guidelines
CM	Construction Manager
CV	Curriculum Vitae
CEM	Construction Environmental Management
DFFE	Department of Forestry, Fisheries and the Environment
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
ECO	Environmental Control Officer
EO	Environmental Officer
EMI	Environmental Management Inspectorate
NCR	Non-conformance Report
NEMA	National Environmental Management Act 107 of 1998 (as amended)
PER	Project Environmental Resource
PES	Project Environmental Specification
PLP	Project Life-cycle Process
PM	Project Manager

Acronym	Meaning in Full
SAHRA	South African Heritage Resources Agency
SOP	Standard Operating Procedure
SHEQ	Safety, Health, Environment and Quality
Transnet	Transnet SOC Ltd

5. ACCOUNTABILITY, RESPONSIBILITY AND AUTHORITY

5.1 Transnet Procurement Department

5.1.1 Ensures that this SOP (and relevant associated environmental specifications) is included in any construction-related request whether open market, quotation or confinement process.

5.1.2 The Procurement Department shall further ensure that the relevant environmental personnel are consulted during tender review, tender evaluation and contract award.

5. Transnet Project Manager (PM)

5.2.1 Takes overall accountability for the project including ensuring that this SOP is implemented by all relevant stakeholders.

5.2.2 The specific tasks during construction will include:

- Appointment of the Transnet Environmental Resource/s;
- Certifying site access to the Contractor;
- Giving instructions to the Contractor on recommendation from the Transnet Environmental Resource/s (e.g. defects, non-conformances etc.); and
- Certifying site closure to the Contractor.

5.3 Transnet Project Environmental Resource

5.3.1 The Transnet Project Environmental Resource (PER) will be responsible for ensuring that this SOP and associated specifications or requirements are complied with. The Transnet PER will report functionally to the relevant PM.

5.3.2 The specific tasks will include:

- Preparation of the PES;
- Tender evaluation, development of environmental criteria and adjudication thereof;
- Liaison with the relevant environmental Competent Authorities;

- Review and approve site layout plan including any subsequent revisions thereof;
- Environmental Induction of Contractor's staff;
- Generate an inspection checklist prior to construction commencement;
- Review and Sign off Method Statements prepared by Contractor;
- Prepare environmental monitoring protocols/checklists to be used during construction;
- Prepare monthly conformance audit reports, including sign-off on Monthly Inspection Reports;
- Conduct monthly observation & inspections of all work places based on the approved inspection checklist;
- Audit conformance to Method Statements;
- Monitor the Contractor's compliance with this SOP and any other environmental requirements relevant to the site;
- Develop an Audit Finding and Close out Register that documents all audit findings, close out actions and the time frame allowed for in order to close the finding/s;
- Ensure that all environmental monitoring programmes (sampling, measuring, recording etc. when specified) are carried out according to protocols and schedules;
- Measurement of completed work (e.g. areas top soiled, re-vegetated, stabilised etc.);
- Attendance at scheduled SHE meetings, as and when required, and project coordination meetings;
- Ensure that site documentation (permits, licenses, EA, EMPr, SOP-CEM, method statements, audit reports, waste disposal slips etc.) related to environmental management is maintained on the relevant Document Control System;
- Inspect and report on environmental incidents and check corrective action;
- Keep a photographic record of all environmental incidents;

- Environmental incident management as required by Transnet policies and procedures;
- Implementation of environmental-related actions arising out of the minutes from scheduled meetings;
- Management of complaints register;
- Conduct any environmental incident investigations;
- Coordinate and/or facilitate any environmental monitoring programmes e.g. EMI Inspections, ECO Audits, Transnet Environmental Assurance Audits etc.
- Collate information received, including monitoring results into a monthly report that is supported with photographic records to the Transnet CM and Transnet PM showing progress against targets; and
- Report environmental performance of the project on a monthly basis through relevant governance channels.

5.3.3 The tasks stipulated above may be conducted by one or more Project Environmental Resource, depending on the scale, complexity and sensitivity of the environment. Discretion to be taken by the Environment Lead within the area of control of the project site.

5.4 Transnet Construction Manager (CM)

5.4.1 The Transnet Construction Manager (CM) has overall responsibility for environmental management on site and reports to the Transnet PM. The Transnet CM is supported by the Transnet PER.

5.4.2 The specific tasks during the construction stage will include:

- Reviewing the monthly reports compiled by the Transnet PER;
- Approving method statements prepared by the Contractor;
- Communicating directly with the Contractor on environmental issues observed on-site; and
- Escalating any relevant environmental matters to the Transnet PM.

5.6 Environmental Control Officer

5.6.1 The Environmental Control Officer is an independent person legally appointed to monitor compliance of construction related activities with the conditions of the Environmental Authorisation. The ECO fulfils an autonomous role and submits reports to the Competent Authority at timeframes specified in the Environmental Authorisation.

5.6.2 The Environmental Control Officer will conduct the following tasks:

- Monitors compliance to the conditions of the EA, Environmental Management Programme (EMPr) and can include permits and licences applicable to a project;
- Attends project meetings as and when required;
- Conducts audits at a frequency stipulated on the EA/EMPr; and
- Compiles audit reports and submits them to relevant authorities.

5.7 Contractor's Environmental Officer

5.7.1 The Contractor's Environmental Officer (EO) must ensure implementation of the requirements of this SOP on site.

5.7.2 The Contractor's EO will liaise with the Transnet PER on site. It will be the responsibility of the Contractor's EO to ensure that all work is conducted according to the approved Method Statements and that the Contractor team's roles and responsibilities as set out in this document are fulfilled.

5.7.3 The Contractor EO's tasks will include:

- Developing an appropriate environmental file for approval by the Transnet PER prior to site access, including but not necessarily limited to (the environmental file must always be available and up to date on the construction site):
  - All environmental documents provided by Transnet in the tender e.g. policies, SOPs, standards, environmental approvals;

- Contractors commitments to comply with this SOP and associated documents as signed during tender;
- The Contractor's EMP;
- His/her CV;
- An organogram indicating reporting lines of all Contractor's staff (with names included);
- Contact Information for: the overall responsible person acting on behalf of the Contractor to execute the construction works; Contractor's CM; Contractor's EO; all relevant emergency personnel;
- A list of the Contractor's plant and equipment indicating a description of the plant/equipment, its fuel capacity, any hazardous components (oils, greases etc.), individual service/maintenance cycles and noise levels;
- A list of hazardous substances to be used during construction indicating: official substance name from Material Safety Data Sheet (MSDS); quantity on site; storage method; transport method to site; period to be used on site (all substances listed must have an MSDS on site in the environmental file);
- Site Layout Plan indicating but not necessarily limited to, access roads, site offices, material laydown areas, stockpile areas and parking areas, waste and effluent storage and handling facilities, entire construction footprint, no-go-areas, sewage and sanitary facilities. The plan must be appropriately drawn on a computer and must be clearly visible and properly scaled;
- A site establishment method statement (for more details on what method statements should entail the Contractor must refer to the Minimum Requirements for Construction Environmental Management)

- Conducting an activity-based environmental risk assessment based on the Contractor's scope of work;
- Agreeing on an appropriate inspection schedule with the Transnet PER (either daily or weekly);

- Ensuring that all required Contractor staff attends the environmental induction to be given by the Transnet PER (any Contractor's staff, sub-contractors or visitors to site must subsequently be inducted by the Contractor's EO);
- Inspection of the work area(s) as per schedule or authorised through written instruction by Transnet PER;
- Preparing activity-based Method Statements that indicate how environmental risks will be managed on site OR ensuring that the necessary environmental information is included in the Contractor's method statements (all method statements must be maintained in the Contractor's Environmental File);
- Identify local, provincial and national environmental legislation that applies to the Contractor's activities;
- Conduct ongoing Environmental Awareness Training of the Contractor's site personnel;
- Reporting, investigating and recording of any environmental incidents caused by the Contractor or due to the Contractor's activities, including their sub-contractors and visitors;
- Close out of environmental incidents;
- Attendance at all SHE meetings and induction programmes, and toolbox talks where required
- Monitor Waste Management;
- Monitor Water Management;
- Monitor Energy Management;
- Ensure that environmental signage and barriers are correctly placed;
- Taking required corrective action within specified time frame and close out of non-conformances; and
- Maintain site documentation related to environmental management on site.

5.7.4 The Contractor's EO will be expected to submit reports to the Transnet PER on a daily/weekly basis.

5.8 The Contractor

5.8.1 The Contractor shall comply with the requirements of this SOP and abide by the Transnet PM's instructions regarding the implementation of this SOP.

5.8.2 The Contractor must confirm that he will conform to the requirements of this SOP and any other documents provided to him by Transnet during tender.

5.8.3 The Contractor must recommend a suitably qualified, competent person to fulfill the role of the Contractor's EO at tender and if accepted by Transnet this person must be appointed when the Contract is awarded for the duration of construction. Should this person be replaced for whatever reason, the Contractor shall ensure that a person of similar qualification and competency is appointed in his/her place before the previous incumbent vacates his/her position.

5.8.4 The Contractor must obtain any relevant environmental approvals required by his activities that have not been obtained by Transnet e.g. permits for the destruction of protected plant species; grave relocation permits etc.

5.8.5 The Contractor shall have overall accountability for environmental compliance on site and will be held liable for any non-compliance with environmental statutes or non-conformances with this SOP due to his negligence.

5.9 Reporting Lines

5.9.1 The organisational structure identifies and defines the responsibilities and authority of the various entities involved in the project. All instructions and official communications regarding environmental matters will follow the organisational structure shown in Figure 1.

5.9.2 All instructions that relate to the SOP will still be given to the Contractor via the Transnet PM. In an emergency situation, however, the Transnet PER may give an instruction directly to the Contractor. Environmental Management of the site will be an item on the agenda of the monthly site meetings, and the Transnet PER will attend these meetings on request by the contractor. If at any time the Transnet

PM is uncertain in any way with respect to an environmentally related issue or specification in the SOP, he will consult with the Transnet PER .

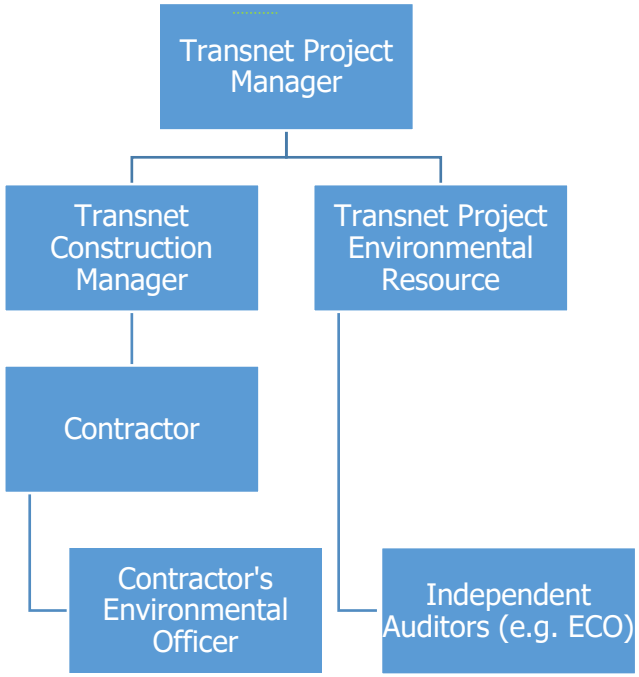


Figure 1: Typical Transnet Organogram for Construction Environmental Management[2]

6. STANDARD OPERATING PROCEDURE

6.1 Tender Stage (prior to Contract Award)

- The Transnet PM appoints or assign a Project Environmental Resource/s[3].
- The Transnet PER requests the draft tender from the Transnet Procurement Department
- Transnet Procurement routes the draft tender to the Transnet PER

[2] Structure dependent on OD own structure and organizational operating model

[3] Project complexity will determine the final environmental management structure on the project.

- The Transnet PER ensures the tender includes all relevant environmental documents and signs the routing slip.
- The Transnet Procurement Department issues the tender to prospective Contractor(s).
- The Contractor submits his bid which MUST include: a commitment to conform to this SOP signed by the duly delegated person; recommendation of a suitably qualified, competent person to fulfill the role of the Contractor's EO; Environmental Policy; and EMP
- After submission the Transnet Procurement Department will invite the Transnet PER to evaluate tender submissions (environmental section);
- The Transnet PER evaluates the prospective Contractor's environmental submission.
- The Contract is awarded to the successful bidder.

6.2 Construction Stage (prior to Site Access)

- The Contractor appoints the Contractor's Environmental Officer (EO) accepted by Transnet SOC Ltd.
- The Contractor provides his EO with all documents submitted during tender, including but not necessarily limited to:
  - All environmental documents provided by Transnet in the tender e.g. policies, SOPs, standards, environmental approvals etc;
  - commitment to conform to this SOP; and
  - The EMP.
- The Contractor's EO conducts an activity-based environmental risk assessment;
- The Contractor's EO develops an appropriate environmental file for approval by the Transnet PER, including but not necessarily limited to all the documents specified in Section 5.7 above (the environmental file must always be available and up to date on the construction site);
- The Contractor's EO submits the environmental file for acceptance to the Transnet PER;

- Once accepted, the Transnet PER recommends that site access be granted to the Transnet PM; and
- The Transnet PM issues the Contractor with a Site Access Certificate

6.3 Construction Stage (post Site Access)

- The Transnet PER inducts all Contractor's staff on the environmental requirements of the site;
- The Transnet PER has an inception meeting with the Contractor's EO on site where the following is agreed:
  - The contents of the contractor's environmental file (in addition to what was approved prior to granting site access). This will include but not necessarily be limited to: a list of interested and affected parties that may be impacted by construction e.g. surrounding landowners, nearby communities etc.; energy consumption information; water use information; environmental induction and awareness information; activity-based environmental method statements; complaints records; record of external communications; environmental incident reports; minutes of contractors environmental meetings.
  - The composition of the Project Environmental Specification (PES) and how it will be implemented. This will include but may not necessarily be limited to: Environmental Approvals (e.g. Environmental Authorisations, Water Use Licenses, Waste Management Licences, Atmospheric Emissions Licences etc.); Environmental Management Programmes/Plans approved by external parties/authorities; and any third party auditors/monitoring specialists (e.g. Environmental Control Officers; Independent Auditors; Transnet Environmental Assurance Specialists; Water Quality Monitoring experts etc.) that have a bearing on the contractor's scope of work.
  - The frequency of inspections to be conducted by the Contractor's EO (e.g. daily, weekly etc.)
  - The frequency of inspections to be conducted by the Transnet PER (e.g. daily, weekly and/or monthly). Notwithstanding that the frequency of

Transnet PER inspections will be agreed, the Contractor may never refuse the Transnet PER

- The format used and elements to be checked during Contractor's inspections
- Reporting frequency and requirements
- The process to be followed in handling Environmental Occurrences and – Non-conformances

- **Note:** All the aforementioned agreements will be formalized in the form of minutes which the Transnet - and Contractor's EO must sign and must subsequently be approved by the Transnet Project Environmental Resource.
- The Transnet PER reviews the Contractor's activity-based environmental risk assessment and instructs the Contractor's EO to submit activity-based method statements for construction activities that may pose an environmental risk (for more details on what method statements should entail the Contractor must refer to the Minimum Environmental Requirements for Construction). Only once a method statement has been approved by the Transnet PER and Transnet CM and ECO (where relevant) may the Contractor execute the relevant activity.
- The Contractor's EO submits the method statements to the Transnet PER for approval (these must also be approved by the Transnet CM);
- The Transnet PER compiles a site audit checklist (covering all environmental compliance and conformance requirements) for approval by the Transnet Project Environmental Manager
- Whilst the Contractor executes the work in terms of the requirements of the Contract, the Contractor's EO and Transnet PER execute their monitoring functions as per this SOP and other monitoring stakeholders/auditors as per the PES.
- The Transnet PER shall submit monthly reports to the Transnet CM and PM indicating the following:
  - Date of the inspection(s);
  - Details and expertise of the Transnet PER;

- Scope and purpose for which the report was prepared;
- Description of the methodology used during the inspection and report compilation;
- Compliance and/or conformance status of all relevant/individual elements as per the inspection checklist culminating in an overall compliance/conformance percentage for the project;
- Assumptions;
- Description of consultation processes undertaken during the inspection(s) with a summary and associated records of such consultations;
- Environmental incidents and non-conformances;
- Photos of pertinent construction and environmental matters that occurred on site;
- Water abstracted/withdrawn during the month (in kiloliters) as well as an indication of the source;
- Water recycled and/or reused during the month (in kiloliters);
- Waste water discharged (in kiloliters);
- Waste (both general and hazardous) disposed (in tonnages) with an indication of waste type;
- Waste recycled (in tonnages);
- Alien invasive species eradicated (in hectares);
- Number of listed species safely relocated;
- Environmental Fines, Non-Compliances or Directives issues by authorities;
- Any NEMA Section 30 or NWA Section 19 incidents;
- Environmental Grievances;
- Rehabilitated Land (in hectares);
- Number of graves and/or heritage artifacts moved;
- Energy consumption for the project [Electricity(kWh); Gas (GJ); Oil(l); Diesel(l); Petrol(l); LPG(GJ)];
- Status of previous findings and/or observations; and
- Recommendations for improvement.

6.4 Post Construction

- The Contractor's EO submits a rehabilitation and site closure method statement for approval by the Transnet PER and Transnet CM.
- Once approved, the Contractor implements the rehabilitation method statement accordingly.
- The Contractor's EO submits a site close-out report for acceptance by the Transnet PER and CM.
- Post rehabilitation, the Transnet PER conducts a site closure inspection to ensure all requirements of the rehabilitation method statement have been met.
- Once rehabilitation has been accepted by the Transnet PER, the Contractor's EO sends the Transnet PER a copy of the entire environmental file (original to be handed over to Transnet as per document handover requirements of the Contract).
- On receipt of the environmental file, the Transnet PER recommends that a site closure certificate can be issued to the Transnet PM.
- The Transnet PM issues the Contractor with a Site Closure Certificate.

7. RECORDS

7.1 The responsibility for maintaining all records required by this SOP shall rest with the Contractor's EO; Transnet PER as specified below:

Record	Maintained By
1. Transnet PER Appointment Letter	Transnet PER
2. Signed Tender Routing Slip	Transnet PER
3. Contractor's Confirmation to conform to this CEM SOP	Transnet PER; Contractor's EO
4. Recommendation of Contractor's EO	Transnet PER

Record	Maintained By
5. Contractor's Environmental Policy	Transnet PER; Contractor's EO
6. Contractor's Environmental Management Plan	Transnet PER; Contractor's EO
7. Tender Evaluation Records from Transnet PER	Transnet PER
8. Contract	Transnet PER
9. Contractor EO's Appointment Letter and CV	Transnet PER
10. Activity-Based Environmental Risk Assessment	Transnet PER; Contractor's EO
11. Contractor's Organogram	Transnet PER; Contractor's EO
12. Contractor's Contact Information	Transnet PER; Contractor's EO
13. List of Contractor's Plant and Equipment	Contractor's EO
14. List of Hazardous Substances used by Contractor	Contractor's EO
15. Material Safety Data Sheets	Contractor's EO
16. Site Layout Plan	Transnet PER; Contractor's EO
17. Site Establishment Method Statement	Transnet PER; Contractor's EO
18. Minutes of Transnet PER – Contractor's EO Inception Meeting	Transnet PER; Contractor's EO
19. Environmental Induction Attendance Register (including material used during induction)	Transnet PER; Contractor's EO
20. Activity-based Method Statements	Transnet PER; Contractor's EO

Record	Maintained By
21. Contractor's Inspection Reports	Transnet PER; Contractor's EO
22. Transnet PER Inspection Reports	Transnet PER
23. List of Local, Provincial and National Environmental legislation applicable to the site	Contractor's EO
24. Environmental Awareness Attendance Registers (including material used)	Contractor's EO
25. Environmental Incident Reports	Transnet PER; Contractor's EO
26. Minutes of SHE Meetings	Transnet PER; Contractor's EO
27. Waste Records	Transnet PER; Contractor's EO
28. Water Records	Transnet PER; Contractor's EO
29. Energy Records	Transnet PER; Contractor's EO
30. Non-Conformance Records	Transnet PER; Contractor's EO
31. Approval of Contractor's Environmental File	Transnet PER
32. Site Access Certificate	Transnet PER
33. Approved Transnet PER Checklist	Transnet PER
34. Transnet Monthly PER Reports	Transnet PER
35. Rehabilitation Method Statement	Transnet PER; Contractor's EO
36. Contractor's Site Close-Out Report	Transnet PER; Contractor's EO
37. Transnet PER Site Closure Report	Transnet PER
38. Contractor's Environmental File Handover Transmittal	Transnet PER; Contractor's EO
39. Site Closure Certificate	Transnet PER

8. ANNEXURES

8.1 List of Construction Environmental Management Templates, Forms and Guidelines

8.2 009-TCC-CLO-SUS-TMP-11386.22 - Construction Environmental Management File Index

8.3 009-TCC-CLO-SUS-TMP-11386.23 - *Construction Environmental Management Process Flow*

Annexure 8.1 List of Construction Environmental Management Templates, Forms and Guidelines

No	Item Description	Document No
1.	Construction Environmental Management File Index	009-TCC-CLO-SUS-TMP-11386.1
2.	Project Environmental Specification (PES)	009-TCC-CLO-SUS-TMP-11386.2
3.	Declaration of Understanding (Signed)	009-TCC-CLO-SUS-TMP-11386.3
4.	Contractor's Information	009-TCC-CLO-SUS-TMP-11386.4
5.	Appointment of Contractors EO and Declaration of Understanding (Including CV and Job Profile)	009-TCC-CLO-SUS-TMP-11386.5
6.	Schedule of Contractor's Construction Plant and Equipment	009-TCC-CLO-SUS-TMP-11386.6
7.	Hazardous Substances Register	009-TCC-CLO-SUS-TMP-11386.7
8.	Emergency Contacts Register	009-TCC-CLO-SUS-TMP-11386.8
9.	Energy Consumption Register	009-TCC-CLO-SUS-TMP-11386.9
10.	Water Usage Register	009-TCC-CLO-SUS-TMP-11386.10
11.	Project Start-Up Checklist	009-TCC-CLO-SUS-TMP-11386.11
12.	Site Access Certificate	009-TCC-CLO-SUS-TMP-11386.12
13.	Method Statement Register	009-TCC-CLO-SUS-TMP-11386.13
14.	Method Statements	009-TCC-CLO-SUS-TMP-11386.14
15.	Waste Disposal Register	009-TCC-CLO-SUS-TMP-11386.15
16.	Daily Inspection Checklist	009-TCC-CLO-SUS-TMP-11386.16
17.	Weekly Inspection Checklist	009-TCC-CLO-SUS-TMP-11386.17
18.	Monthly Inspection Checklist	009-TCC-CLO-SUS-TMP-11386.18

No	Item Description	Document No
19.	Public Complaints Register	009-TCC-CLO-SUS-TMP-11386.19
20.	Application for Exemption	009-TCC-CLO-SUS-TMP-11386.20
21.	Site Closure Certificate	009-TCC-CLO-SUS-TMP-11386.21
22.	Contractor's Environmental Management File Handover	009-TCC-CLO-SUS-TMP-11386.22
23.	Basic Environmental Rules for Visitors	009-TCC-CLO-SUS-GDL-11386.23
24.	Basic Environmental Rules for Contractors	009-TCC-CLO-SUS-GDL-11386.24
25.	Basic Site Procedure	009-TCC-CLO-SUS-GDL-11386.25
26.	Contractor Environmental and Sustainability Specification Guidelines (CESSG)	TRN-IMS-GRP-GDL-014.04

Annexure 8.2 Construction Environmental Management File Index

No	Item Description	Document No
1	Transnet Integrated management System (TIMS) Policy Statement	-
2.1	Standard Operating Procedure (SOP) - Construction Environmental Management (CEM)	009-TCC-CLO-SUS-11386
2.2	Environmental and Sustainability Specification Guidelines	TRN-IMS-GRP-GDL-014.04
3	Project Environmental Specification (PES)	009-TCC-CLO-SUS-TMP-11386.2
4	Declaration of Understanding (Signed)	009-TCC-CLO-SUS-TMP-11386.3
5.1	Contractor's Information	009-TCC-CLO-SUS-TMP-11386.4
5.2	Contractor's Environmental Policy	-
5.3	Contractor's Organogram	-
5.4	Contractor's Environmental Management Plan	-
5.5	Appointment of Contractors EO and Declaration of Understanding (Including CV and Job Profile)	009-TCC-CLO-SUS-TMP-11386.5
6	Schedule of Contractor's Construction Plant and Equipment	009-TCC-CLO-SUS-TMP-11386.6
7	Hazardous Substances Register	009-TCC-CLO-SUS-TMP-11386.7
8	Emergency Contacts Register	009-TCC-CLO-SUS-TMP-11386.8
9	Energy Consumption Register	009-TCC-CLO-SUS-TMP-11386.9
10	Water Usage Register	009-TCC-CLO-SUS-TMP-11386.10
11	Training Attendance Register	TIMS Procedure
12	Project Start-Up Checklist	009-TCC-CLO-SUS-TMP-11386.11
13	Site Access Certificate	009-TCC-CLO-SUS-TMP-11386.12
14	Method Statement Register	009-TCC-CLO-SUS-TMP-11386.13

No	Item Description	Document No
15	Method Statements	009-TCC-CLO-SUS-TMP-11386.14
16	Waste Disposal Register	009-TCC-CLO-SUS-TMP-11386.15
17.1	Daily Inspection Checklist	009-TCC-CLO-SUS-TMP-11386.16
17.2	Weekly Inspection Checklist	009-TCC-CLO-SUS-TMP-11386.17
17.3	Monthly Inspection Checklist	009-TCC-CLO-SUS-TMP-11386.18
17.4	Environmental Inspection Findings Close-out Register	TIMS Procedure
18	Public Complaints Register	009-TCC-CLO-SUS-TMP-11386.19
19	Occurrence Register	TIMS Procedure
20	Transnet Occurrence Notification Report	TIMS Procedure
21.1	Environmental Occurrence Technical Form	TIMS Procedure
21.2	On-site Investigation Form – Incident Commander Report	TIMS Procedure
21.3	Investigation Form Report for Level 3 & 4 Occurrences	TIMS Procedure
21.4	Incident Commander Appointment Letter	TIMS Procedure
22	Non-Conformance Register	TIMS Procedure
23	Non-Conformance Report Form	TIMS Procedure
24	Non-Compliance Stop Certificate	TIMS Procedure
25	Application for Exemption	009-TCC-CLO-SUS-TMP-11386.20
26.1	Site Closure Inspection Form	TIMS Procedure
26.2	Site Closure Certificate	009-TCC-CLO-SUS-TMP-11386.21
26	Contractor's Environmental Management File Handover	009-TCC-CLO-SUS-TMP-11386.22

No	Item Description	Document No
27.1	Basic Environmental Rules for Visitors	009-TCC-CLO-SUS-GDL-11386.23
27.2	Basic Environmental Rules for Contractors	009-TCC-CLO-SUS-GDL-11386.24
27.3	Basic Site Procedure	009-TCC-CLO-SUS-GDL-11386.25

Annexure 8.3 Construction Environmental Management Process Flow