APPENDIX F:

TRANSNET CONTROL DOCUMENTS

APPENDIX F1:

STANDARD ENVIRONMENTAL SPECIFICATION (SES)

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TRANSNET CAPITAL PROJECTS
ENVIRONMENTAL MANAGEMENT

STANDARD ENVIRONMENTAL SPECIFICATION (SES)

ENV-STD-002 Rev00

Document Control

This document will be managed and controlled in terms of the TCP document management procedure.

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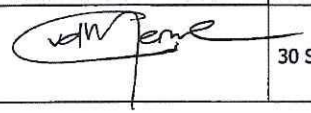
Christelle van Der Merwe	legal, Risk, Quality & Sustainability		30 September 2011

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1 Purpose

This procedure describes the minimum standards for environmental management to which Contractors and sub-Contractors on a construction site must comply. It is a generic standard for use across all construction works within Transnet Capital Projects.

There may be project specific environmental standards in addition to the standards in this document, or that exceed the standards prescribed here. These project specific environmental standards will be described in the Project Environmental Specification (PES) that will be issued separately for each project.

This document must be read in conjunction with the Transnet Capital Projects Construction Environmental Management Plan (CEMP).

2 Scope

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

3 References

- Constitution of the Republic of South Africa 108 of 1996
- National Environmental Management Act 107 of 1998
- National Environmental Management – Air Quality Act 39 of 2004
- National Environmental Management – Waste Act 59 of 2008
- National Environmental Management – Biodiversity Act 10 of 2004
- National Environmental Management – Protected Areas Act 57 of 2003
- National Environmental Management – Integrated Coastal Management Act 24 of 2008
- National Veld and Forest Fire Act 101 of 1998
- Marine Living Resources Act 18 of 1998
- Marine Pollution (Control and Civil Liability) Act 2 of 1986
- Mineral and Petroleum Resources Development Act 28 of 2002
- National Heritage Resources Act 25 of 1999
- National Forests Act 84 of 1998
- National Water Act 36 of 1998
- Atmospheric Pollution Prevention Act 45 of 1965
- Environmental Authorisation (EA) applicable to the Project
- Sea-shore Act No. 21 of 1995
- Standards Act 29 of 1993
- Dumping at Sea Control Act 73 of 1980
- Occupational Health & Safety Act 85 of 1993

- Environment Conservation Act 73 of 1989
- ISO 9001:2008
- ISO 14001:2004
- OHSAS 18001:2007
- Road Traffic Act 29 of 1989
- Hazardous Substances Act 15 of 1973
- SANS 10103:2004. The measurement and rating of environmental noise with respect to land use, health annoyance and to speech communication
- Transnet Safety, Health, Environmental and Quality Risk Management System
- Transnet Capital Projects Construction Environmental Management Plan

4 Standards for environmental management

The Contractor shall identify the potential environmental impacts that may occur as a result of their activities and accordingly prepare separate Method Statements describing how each of these impacts will be prevented or managed so that the standards set out in this document are achieved. These method statements will be prepared in accordance with the requirements set out in the Transnet Capital Projects Construction Environmental Management Plan.

4.1 Site establishment

4.1.1 Objective

To ensure that environmental issues are taken into account in the establishment of the site offices and all other facilities on site.

4.1.2 Scope

This standard applies to all activities relating to the planning of the site, site establishment, operation of the site and closure of the site.

4.1.2.1 Site plan

The Contractor shall establish his construction camps, offices, workshops, staff accommodation and any other facilities on the site in a manner that does not adversely affect the environment. However, before construction can begin, the Contractor shall submit to the Construction Manager for his approval, plans of the exact location, extent and construction details of these facilities and the impact mitigation measures the Contractor proposes to put in place.

The plans shall detail the locality as well as the layout of all waste treatment facilities for litter, kitchen refuse, sewage and workshop-derived effluents. 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 are located as far away as possible from any water course as possible. Regardless of the chosen site, the Contractor's intended mitigation measures shall be indicated on the plan.

4.1.2.2 Sewage

Particular reference in the site establishment plan shall be given to the handling of sewage generated at the site offices and staff accommodation and at all localities on the site where there will be a concentration of labour. Sanitary arrangements should be to the satisfaction of the Construction Manager.

Safe and effective sewage treatment will require one of the following sewage handling methods: septic tanks and soak-aways, dry-composting toilets such as "enviro loos", or the use of chemical toilets which are supplied and maintained by a subContractor. The type of sewage treatment will depend on the location of the site and the surrounding land uses, the duration of the contract and proximity (availability) of providers of chemical toilets. Should a soak-away system be used, it shall not be closer than 800 metres from any natural water course or water retention system. The waste material generated from these facilities shall be serviced on a regular basis.

Toilets and latrines shall be easily accessible and shall be positioned within walking distance from wherever employees are employed on the works. 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. 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 engineer.

4.1.2.3 Effluent management

All effluent water from the camp / office sites shall be disposed of in a properly designed and constructed system, situated so as not to adversely affect water courses (streams, rivers, pans dams etc). Only domestic type wastewater shall be allowed to enter the designated system.

4.2 Waste Management

4.2.1 Objective

To ensure that all waste generated during construction and commissioning of the facilities is properly disposed of.

Examples of typical construction waste which, could be expected on the site 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	

WASTE	CLASSIFICATION	
	HAZARDOUS	GENERAL
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 containing fibrous asbestos	X	
Waste timber		X
Sewerage sludge	X	
Scrap metal		X

4.2.2 Scope

This standard applies to all construction, commissioning and site activities that may lead to the generation of waste.

4.2.3 Approach

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

General waste to be expected during construction includes 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
- Uncontaminated soil and non-hazardous rubble from excavation or demolition

Hazardous waste means any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical characteristics, such as toxic, ignitable, corrosive, carcinogenic or other properties or toxicological characteristics of that waste, have a detrimental impact on health and the environment.

Waste avoidance and minimisation

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

- **Prevent**: waste avoidance and minimisation during production
- **Recycle**: waste recycling, recovery and utilisation
- **Treat**: waste treatment in order to reduce toxicity and to minimise the quantities of waste
- **Disposal**: waste disposal, probably by incineration, destruction or landfill

4.2.4 Waste Management

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: **www.sawic.org.za**)

The classification of waste determines handling methods and the ultimate disposal of the material. The Contractor shall manage hazardous wastes that are anticipated to be generated by his operations as follows:

- Characterise the waste to determine if it is general or hazardous
- Obtain and provide an acceptable container with label
- Place hazardous waste material in 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 disposal of the waste

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.

Information on each hazardous substance will be available to all persons on site in the form of Material Safety Data Sheets (MSDS'). 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 Environmental Officer 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.

The Contractor shall manage GENERAL WASTE that is anticipated to be generated by operations 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.

On the Project, however, waste generating entities are directed to control the generation of non-hazardous waste by:

- Eliminating waste generation or reducing the total volume
- Reducing the degree of contamination of waste generated
- Reclaiming materials otherwise considered waste

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

- Obtain and label recycling containers for:
  - Office Waste
  - Aluminum
  - Steel
  - Glass
  - Ferrous Metals
  - Non Ferrous Metals
  - Waste Timber
  - And locate them within temporary office building and trailers
- Establish recycled material collection schedule
- Arrange for full bins to be hauled away

Spent batteries, circuit boards, and bulbs, while non-hazardous, require special collection and handling.

4.3 Vehicle and Equipment Refueling

4.3.1 Objective

To eliminate/control fuel and oil spillage at refuelling facilities.

4.3.2 Scope

This standard applies to all refuelling, lubrication and oil changing requirements on all vehicles and machinery.

4.3.3 Refueling

Engine driven compressors, pumps, air conditioners, and arc welders can have small leaks (usually oil) that can accumulate to become spills, which require clean up. These leaks become more evident if the equipment remains in the same place for an extended period of time. Damaged fuel tanks, fuel hoses, and fuel pumps can be sources of significant fuel

leaks. Hydraulic systems can blow gaskets or hoses resulting in large quantities of hydraulic fluid spilled to the ground.

4.3.3.1 Control

No vehicles or machines shall be serviced or refuelled on site except at designated servicing or refuelling locations, no oil or lubricant changes shall be made except at designate 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 TCP 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), and the Occupational Health and Safety Act, (Act 85 of 1993), mainly the Construction - and Hazardous Chemical Substances Regulations.

4.3.3.2 Spill Response

The Contractor shall comply with the regulations of the National Water Act, (Act 36 of 1998), the Hazardous Substances Act, (Act 15 of 1973), the Environment Conservation Act, (Act 73 of 1989), and the Occupational Health and Safety Act, (Act 85 of 1993).

The Contractor shall provide details for approval of its spill response plan in the event of any spills of fuel, oils, solvents, paints or other hazardous materials. The plan will show measures to be taken to remove contaminated soils 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 contamination 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 off-site surface water
- Dispose of contaminated material to a location designated thereto

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
- Recovery of the spilled product
- Proper disposal of spilled material

4.4 Spray Painting and Sandblasting

4.4.1 Objective

To ensure that all spray painting and sandblasting on site is done in a controlled manner where appropriate measures are taken to prevent paint contamination of the soil and to ensure that sandblasting grit/media is properly contained and disposed of.

4.4.2 Scope

All spray painting and sandblasting on site.

4.4.3 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 on site. Touch-up painting is to be done by hand painting or by an approved procedure. A Method Statement shall be submitted to the TCP Environmental Officer for approval.

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 Environmental Officer will monitor these activities to ensure that adequate measures are taken to prevent contamination of the soil.

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

4.5 Dust Management

4.5.1 Objective

To prevent/control the generation of dust on the construction site and access roads.

4.5.2 Scope

Contractors (associated with activities such as earthworks, geotechnical surveys, piling, storm water drainage, construction of roads and railways, foundations, brick building, operating workshops, fencing, erecting construction camps, and batch plant activities, etc.) shall submit a dust control plan for approval by the Environmental Officer.

4.5.3 Management of Dust

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 the 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. The Contractor will be responsible for dust control of the entire construction area.

Some dust control measures which are normally applied during construction are presented in this section for inclusion by the Contractor in his Dust Control Method Statement.

These dust-mitigating procedures include the following:

- Limit vehicle speeds on unpaved roads to 20 km/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 one on which construction will not occur for a month or more).
- Construction material being transported by trucks must be suitably moistened or covered to prevent dust generation
- Strip and store topsoil in separate stockpiles with mounds not exceeding 2 m in height to, among other things, prevent wind-blown dust
- Minimise disturbance of natural vegetation during right-of-way construction (e.g. transmission lines and erection of fences) to reduce potential erosion, runoff, and air-borne dust
- Implement a system of reporting excessive dust conditions by construction personnel (as instructed through Environmental Awareness Training)

Water for dust control shall be taken only from approved sources.

4.6 Storm water and Dewatering Management

4.6.1 Objective

To ensure that storm water and dewatering drainage across the site occurs in a manner that will negate contamination by oils, fuels, litter and other waste and prevent erosion of the construction terrace.

4.6.2 Scope

All runoff and dewatering activities.

4.6.3 Storm water and Dewatering Management

Water is a valuable resource. Both the quality and quantity of water used by the Contractor should be considered in making resource conservation plans.

Construction activities that may potentially impact on surface water and groundwater are: runoff and percolation; dewatering activities; and miscellaneous liquid wastes associated with construction activities.

In general, construction activities may affect water quality and/or quantity of groundwater and/or surface water of the area.

The Contractor shall be aware that, 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 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

4.6.3.1 Surface runoff

Construction activities such as surface grading and excavation will disturb surface areas on site. This will increase the potential for soil erosion and subsequent sediment transport during periods of precipitation runoff or when excavation dewatering is required. Construction activities also have the potential to change local surface drainage and sediment transport patterns, site floodplain delineation, and percolation rates into soil.

4.6.3.2 Dewatering

Dewatering during groundwork produces a surface water discharge that will require collection and sedimentation. Dewatering also has the potential to affect groundwater quality and quantity.

4.6.3.3 Wastewater

Liquid wastes including used solvents, used lubricating oils, chemical flushing agents, spill cleanup wastes, painting wastes, and concrete mixing drum washings, etc., have the potential to affect surface water and groundwater quality.

4.6.3.4 Management Requirements

- 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

Specific water management measures (surface and groundwater) for incorporation by Civil/Earthworks Contractors into their EMP's include the following:

- The Contractor shall ensure that no contaminated surface water shall flow off-site as a result of Contractor operations. 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
- 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. The dewatering water shall be contained within the site boundaries by sequentially pumping or routing water to and from sub-areas within the site as the construction activities proceed. No discharge/dewatering 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
- Ditches shall be designed to carry a 25-year storm event with velocities in accordance to minimise erosion. Erosion protection shall consist of suitable stabilising surfaces in all ditches
- Culverts shall be designed to ensure passage of the 25-year storm peak runoff flow

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

- Scheduling of activities to minimise the amount of disturbed area 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
- Implementing the erosion and sedimentation control plan and ensuring that construction personnel are familiar with and adhere to it
- Managing runoff during construction
- The Contractor shall be responsible for checking and maintaining all erosion and sedimentation controls

4.7 Rehabilitation

4.7.1 Objective

To ensure that all areas affected by the project are appropriately rehabilitated and re-vegetated in a manner congruent with the surrounding biophysical environment. The prevention of spread of alien invasive species.

4.7.2 Scope

All areas affected by the project including lay down areas.

4.7.3 Rehabilitation

Contractors shall rehabilitate their lay-down area/s upon completion of work on site. A rehabilitation plan will be submitted to the Construction Manager for approval at least six weeks before completion. The following 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 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)
- Procedures for the prevention of the establishment and spread of alien invasive species.

4.8 Noise Management

4.8.1 Objective

To maintain construction noise at the site within legal limits.

4.8.2 Scope

Any noise generated at the construction site.

4.8.3 Noise Management

- 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

Noise control measures for incorporation by the Contractor in its noise control plan shall include the following:

- Ensure that the potential noise source will 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
- If on-site noise control is not effective, protect the victims of noise (e.g. ear-plugs) by ensuring that all noise-related occupational health provisions are met. (Occupational Health and Safety Act, (Act 85 of 1993).

4.9 Protection of heritage resources

4.9.1 Objective

To ensure the protection of archaeological, historical artefacts, or heritage resources discovered during construction activities.

4.9.2 Scope

Archaeological, historical artefacts, or heritage resources discovered on or near the site.

4.9.3 Archeological 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 engineer of such a discovery. The South African Heritage Resources Agency (SAHRA) is to be contacted and will appoint an archaeological consultant. Work may only resume once clearance is given in writing by the archaeologist.

4.9.4 Graves and middens

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 engineer informed of the discovery. The National Monuments Council 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 National Monuments Council, be responsible for attempts to contact family of the deceased and for the site where the exhumed remains can be re-interred.

4.10 Fire prevention

4.10.1 Objective

To minimise the risk of uncontrolled fires.

4.10.2 Scope

All activities on or near the site that could initiate an uncontrolled fire.

4.10.3 Fire control

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

4.11 Supply of water for human use

4.11.1 Objective

To ensure that there is an adequate, safe water supply for all personnel on site.

4.11.2 Scope

Managing the water supply on site and controlling the abstraction of water from natural resources in the area.

4.11.3 Collection of water from natural resources

No water for domestic use (drinking water or for bathing or washing) shall be abstracted from any water resource (stream, river, or dam) without the express permission of the Construction Manager. 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 Affairs in accordance with the requirements of the National Water Act (Act 36 of 1998).

4.11.4 Provision of drinking water

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.

4.12 Protection of livestock or game and the collection of firewood

4.12.1 Objective

To prevent illegal activities potentially perpetrated by site staff and to prevent the killing of any animals trapped in construction works or discovered on the construction site or surroundings.

4.12.2 Scope

Managing the activities of site staff during work - and after hours.

4.12.3 Poaching of livestock or game

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.

4.12.4 Killing of animals

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.

4.12.5 Collection of firewood

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.

4.13 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 to 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 proper person for 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 keep a record of all the environmental related training of the personnel.

4.14 Handling and Batching of Concrete and Cement

4.14.1 Objective

To control cement and concrete batching activities so as to prevent the spillage of cement waste water and potential contamination of soil, groundwater and marine environment (where applicable). To avoid or substantially reduce dust emissions caused by cement and concrete activities on site and ensure that no noise nuisance results from batching activities.

4.14.2 Scope

Cement and concrete batching activities commonly produce cement-laden (contaminated) runoff, mainly from washing of mixing equipment. The contaminated runoff is alkaline and contains high levels of chromium, which causes leachate that may ultimately contaminate groundwater. Cement-contaminated water can also increase the pH of marine waters and cause detrimental damage to aquatic life.

Fine dust particles containing cement and concrete are pollutants and can cause damage to neighbouring amenities when allowed to spread.

Excessive noise during batching may cause stress to employees on site and other people within the construction vicinity.

This procedure applies to all cement and concrete batching activities, delivery of ready-mix concrete and small-scale mechanical and hand mixing of concrete and cement, as well as the washing of equipment used in these activities on construction sites managed by TCP.

4.14.3 Handling and Batching of Concrete and Cement

4.14.3.1 Siting

Concrete batching shall only be conducted in demarcated areas which have been approved by the TCP Construction Manager.

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.

4.14.3.2 Handling and Storage

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. Water can be pumped into sealed drums for temporary storage and must be disposed of as liquid hazardous waste.

All concrete washing equipment, such as shovels, mixer drums, concrete chutes, etc. shall be done within the 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 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 concrete bags, if temporarily stored on site, will be secured with adequate binding material.

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

4.14.3.3 Disposal

Concrete and cement or any solid waste materials containing concrete and cement will be disposed of at a registered disposal facility. Where disposal facilities for general waste are utilised, written consent from the relevant municipality must be obtained.

5 Documentation

- Refer to Section 6.5 of the Construction Environmental Management Plan.

6 Records

All documents generated in terms of this procedure will be classed as records and retained for the life of the project.

APPENDIX F2:

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN (CEMP)

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TRANSNET CAPITAL PROJECTS
ENVIRONMENTAL MANAGEMENT

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN (CEMP)

ENV-STD-001 Rev00

Document Control

This document will be managed and controlled in terms of the TCP document management procedure.

Revision History

Author	Date	Description	Revision
Khathutshelo Tshipala	15 September 2011	Construction Environmental Management Plan (CEMP)	00

This document has been reviewed by:

Reviewer	Date reviewed
Joe McMahon	15 September 2011

Document Approvals List

This document has been approved by

Signed approval forms are filed in the Management section of the project files.

Name	SAP Component	Signature	Date approved
Christelle van Der Merwe	Legal, Risk, Quality & Sustainability		30 September 2011

TABLE OF CONTENTS

1 Introduction

This Standard describes the main environmental management requirements that the Contractor must comply with during the construction phase to ensure that the environment is considered, negative impacts avoided or minimised, and positive impacts optimised. The Construction Environmental Management Plan (CEMP) and the associated documents also address the requirements in the Environmental Authorisation (EA) that shall apply to the construction phase of the project. It also gives details on issues that will be obliging in ensuring effective compliance. This document is critical to the Contractor and the Contractor's Environmental Officer (EO) as well as any Sub-contractors reporting to the 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 CEMP;
- Assist the Contractor in understanding the requirements of complying with the CEMP; and
- Provide a set of standards for environmental management during the construction phase.

2 Abbreviations/Definitions

CEMP	Construction Environmental Management Plan. Construction EMP including Standard Environmental Specification (SES) and Project Environmental Specification (PES).
Contractor	The **Principal Contractor** as engaged by Transnet Capital Projects 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 Capital Projects 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 CEMP on a daily basis.
DEA	Department of Environmental Affairs
ECO	Environmental Control Officer (ECO). Independent environmental specialist who monitors compliance with the EA.

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 Impact	Any change to the environment, whether adverse or beneficial, wholly or partially resulting from a Contractor's activities, products or services.
Environmental Risk	The combination of the likelihood and severity of an unforeseen occurrence/incident/aspect and the impact it would have, if realised, on the environment
PES	Project Environmental Specification describes project specific standards to be met during construction, usually set in the EA for the project.
SES	Standard Environmental Specification describes a set of minimal environmental standards for all construction sites.
TCP Project Manager	Means the overall project manager responsible for implementation of the project.
TCP Environmental Manager	Works together with the Project Manager and Construction Manager to ensure that the requirements of the CEMP/SES and Environmental Authorisation are met.
TCP Construction Manager	Works together with the Project Manager to ensure that Construction proceeds in accordance with the relevant specifications and deadlines.
TCP Environmental Officer	Responsible for ensuring that the CEMP is implemented by the construction team and Contractors and their Sub-contractors.

3 Overview of the Construction Environmental Management Plan (CEMP)

It is the stated goal of Transnet Capital Projects 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. The CEMP is the tool used to ensure this goal is achieved during the construction and commissioning phases. Some decommissioning may occur during site clearing in brownfield sites and this CEMP will also apply to those activities.

3.1 Composition of the CEMP

This Standard, Environmental Specifications and Environmental Authorisation (where applicable) shall form an integral part of all contracts with Contractors. The CEMP and associated documents or specifications as well as the EA shall be included in the Tender Documents issued to the prospective Contractors. The Contractors shall incorporate all requirements set out in the specifications in their submissions to Transnet Capital Projects.

There are two types of environmental specifications:

- **Standard Environmental Specification** (SES) that describes the minimal acceptable standard for environmental management for a range of environmental aspects commonly encountered on construction projects. This Specification sets environmental objectives and targets with which the Contractor shall comply.
- **Project Environmental Specification** (PES) that describes standards specific to a particular project. Variations and additions to the Standard Specification are set out in this Project Specification. These would generally be 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 SES if required by the EA or the particular environmental constraints at a construction site.

3.2 Purpose of the Environmental Specifications

The purpose of the PES is to incorporate the relevant recommendations of the Environmental Impact Assessment (EIA) and other environmental studies for the project and the relevant conditions of the EA 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 specifications are configured as performance specifications to ensure that Transnet Capital Projects and any entities that enter into formal agreements with Transnet Capital Projects viz. Consultants, Contractors and Sub-contractors, achieve an acceptable level of environmental performance. No advice, approval of method statements or any other form of communication from Transnet Capital Projects shall be construed as an acceptance by Transnet Capital Projects of any obligation that indemnifies the Contractor from achieving any required level of performance. Further, there is no acceptance of liability by Transnet Capital Projects which may result from the Contractor failing to comply with the specifications, i.e. the Contractor remains responsible for achieving the required performance levels.

4 References

- Constitution of the Republic of South Africa 108 of 1996
- National Environmental Management Act 107 of 1998
- National Environmental Management – Air Quality Act 39 of 2004
- National Environmental Management – Waste Act 59 of 2008
- National Environmental Management – Biodiversity Act 10 of 2004

- National Environmental Management – Protected Areas Act 57 of 2003
- National Environmental Management – Integrated Coastal Management Act 24 of 2008
- National Veld and Forest Fire Act 101 of 1998
- Marine Living Resources Act 18 of 1998
- Marine Pollution (Control and Civil Liability) Act 2 of 1986
- Mineral and Petroleum Resources Development Act 28 of 2002
- National Heritage Resources Act 25 of 1999
- National Forests Act 84 of 1998
- National Water Act 36 of 1998
- Atmospheric Pollution Prevention Act 45 of 1965
- Environmental Authorisation (EA) applicable to the Project
- Sea-shore Act No. 21 of 1995
- Standards Act 29 of 1993
- Dumping at Sea Control Act 73 of 1980
- Occupational Health & Safety Act 85 of 1993
- Environment Conservation Act 73 of 1989
- ISO 9001:2008
- ISO 14001:2004
- OHSAS 18001:2007
- Road Traffic Act 29 of 1989
- Hazardous Substances Act 15 of 1973
- SANS 10103:2004. The measurement and rating of environmental noise with respect to land use, health annoyance and to speech communication
- Transnet Safety, Health, Environmental and Quality Risk Management System
- Transnet Capital Projects Standard Environmental Specification
- Project Environmental Authorisation applicable to the Project and/or any other environmental permits applicable to the project

5 Roles Responsibilities and Organizational Structure Relating to the Implementation of the CEMP

5.1 Environmental Management: Roles and Responsibilities

5.1.1 Transnet Capital Projects Environmental Manager

The Employer's Environmental Manager will be responsible for ensuring that the CEMP and associated documents or requirements are complied with on the construction site. The Employer's Environmental Manager will report functionally to Transnet Capital Projects GM: Legal, Risk, Quality & Sustainability and relevant Project Manager.

The specific tasks during the construction stage will include:

- Liaison with the authorities
- Preparation of the project specific PES
- 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
- 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 Environmental Manager may delegate part or all of these responsibilities to the Transnet Capital Projects Environmental Specialist/Officer, based on the merits of the particular project at hand.

5.1.2 Transnet Capital Projects Construction Manager

The Transnet Capital Projects Construction Manager has overall responsibility for environmental management on site which includes the implementation of the CEMP, SES, PES, permits and licenses and reports to the Project Manager. The Employer's Construction Manager is supported by the TCP Environmental Manager. The specific tasks during the construction phase will include:

- Reviewing the monthly reports compiled by Environmental Officer.
- Identifying the need for remedial measures with regard to proposed works.
- Communicating directly with the Contractors.
- Issuing non-conformance notification to Contractors that do not comply with the requirements of the CEMP and associated requirements or documents, including EA, EMP, permits and licenses.

5.1.3 Transnet Capital Projects Environmental Specialist

The role of the TCP Environmental Specialist is essentially the same as that of an Environmental Control Officer (ECO) but with some additional responsibilities. In instances where the EA requires an independent ECO, an outside consultant will be contracted to undertake the environmental audits of the project. The TCP Environmental Specialist functionally reports to the TCP Environmental Manager, and provides mainly quality assurance with respect to the implementation of environmental governance framework during construction phase.

5.1.4 Transnet Capital Projects Environmental Officer

The TCP Environmental Officer (EO) reports functionally to the TCP Construction Manager and is responsible for conducting the day-today tasks required to ensure that the EA, EMP, CEMP and any permits and licenses are correctly implemented on the construction site.

The Employer's 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, signage)
- Conduct monthly observation & inspections and audit of all work places.
- Monitor the Contractor's compliance with the EA, EMP, CEMP and any permits and licences on site.
- Conduct monthly observations 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 top soiled, re-vegetated, stabilised etc)
- Maintain site documentation related to environmental management (permits, CEMP, 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

5.1.5 Contractor's Environmental Officer

The Contractor shall appoint an Environmental Officer whose role is to ensure compliance with the requirements of the CEMP. The Contractor shall submit the name and CV of the Environmental Officer as well as an Environmental Plan detailing roles and responsibilities. This will be for the Employer's Construction Managers' approval and no work can commence on site if this has not been done.

The Contractor's Environmental Plan will typically consist of:

- Environmental Plan describing 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
- CEMP
- SES
- PES, where applicable.

The Contractor's Environmental Officer will liaise with the TCP 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

requirements of the CEMP are implemented in a timeous and proper manner in his/her work area The Contractor's Environmental Officer tasks will include:

- Daily, weekly and monthly inspections of the work area(s) as per schedule. The Contractor is referred to **Annexure 3** for an example of the items that will need to be inspected and which items will be audited by the Employer's Environmental Officer
- Prepare activity based Environmental Method Statements
- Monitor compliance with the CEMP and Environmental Method Statements
- Ongoing Environmental Awareness Training of the Contractor's site personnel.
- Reporting and recording of any environmental incidents caused by the Contractor or due to the Contractor's activities
- Close out of environmental incidents
- Attendance at all SHE meetings, toolbox talks and induction programmes
- 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, weekly and monthly checklists to the Employer's Environmental Officer.

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

5.1.6 Environmental Auditor

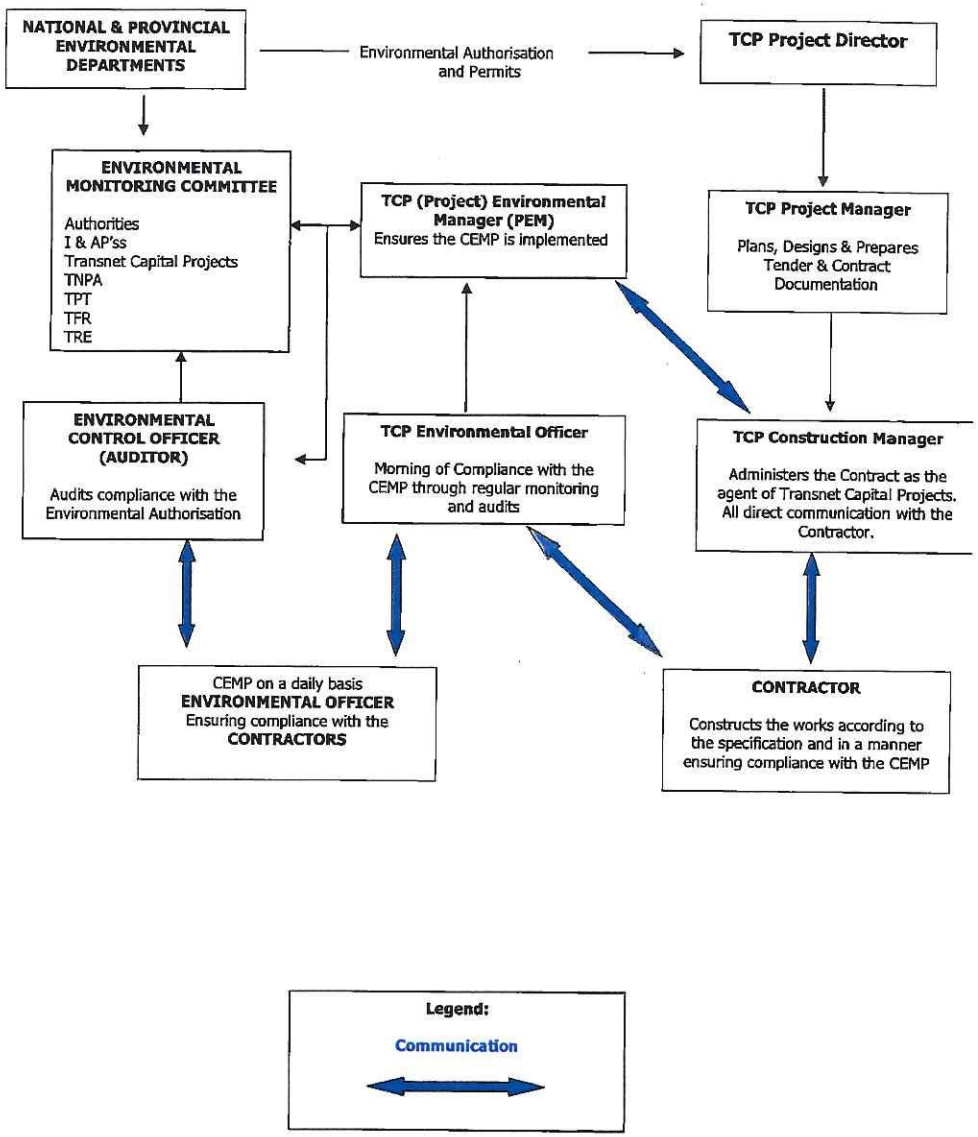
The Environmental Authorisation (EA) may require that an Independent Environmental Control Officer (ECO) is appointed to monitor compliance with the conditions of the EA and EMP. In these instances the ECO will be appointed. The ECO shall be an independent party to TCP. The ECO conducts environmental audits to assess compliance during construction with the relevant requirements of the EA, the CEMP and associated documents and other environmental permits. The Environmental Auditor shall be independent to the project being audited.

5.2 Organisational structure

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 shall follow the organisational structure shown in **Figure 1.**

All instructions that relate to the CEMP will still be given to the Contractor via the TCP Project Manager. In an emergency situation, however, the TCP Environmental Officer 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 Employer's Environmental Officer will attend these meetings. If at any time the TCP Project Manager is uncertain in any way with respect to an environmentally related issue or any specification in the CEMP, he shall consult with the Employer's Environmental Manager.

Figure 1: Typical Organogram for Construction



5.3 The Contractor

The Contractor shall comply with the requirements of the CEMP and abide by the Employer's Construction Manager's instructions regarding the implementation of the CEMP.

The Declaration of Understanding, as detailed in Section 0, must be signed, and the original signed copy must be submitted to the Employer's Construction Manager prior to the start of construction.

Annexure 1 details some of the main actions required for the by the Contractor at various stages during the contract. The Employer's Environmental Officer will monitor that all of these actions are undertaken in accordance with the CEMP. **Annexure 1** aims to ensure that the main actions are not overlooked, and unnecessary delays do not occur, by ensuring that the Project Manager and Contractor are aware of these requirements ahead of time.

It must be noted, however, that **Annexure 1** does not list all the requirements of the CEMP, but rather serves as a guide as to where definite actions are required before certain activities can commence. **Annexure 1** only summarises main points in the SES and should therefore be read in conjunction with the SES, and the PES.

Annexure 3 contains additional issues deemed to form part of the CEMP. It also lists the aspects that will be subject to regular inspections and audits by the various parties.

6 Matters Pertaining to the Implementation of the CEMP

6.1 Availability of the CEMP

Copies of the relevant CEMP documentation (SES, & PES, and any Contractor's Guideline Documents) shall be available at the site offices of the Contractor and on Site. All personnel will be required to go through an environmental induction programme before commencing work on site and this shall be reinforced through weekly/bi-monthly toolbox talks. The Contractor shall ensure that all personnel that work on Site (including Sub-contractors and their staff, and suppliers) are familiar with and understand the requirements of the CEMP.

6.2 Project Environmental Management Plan

The Contractor is required to submit an Environmental Management Plan (EMP) with the 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 environmental impacts.

6.3 Environmental Method Statements

Method statements (see Annexure 1) need to be compiled by the Contractor throughout the Construction and Commissioning phase of the project. These Method Statements must be approved by the TCP Construction Manager and TCP Project Environmental Manager or Environmental Officer. The Contractor shall submit written method statements to the Construction Manager, as requested in the CEMP or as directed by the Construction Manager. The Environmental Method Statement is a written submission by the Contractor to the Employer's Construction Manager describing:

- The proposed activity, setting out the plant, materials, labour and method the Contractor proposes using to carry out an activity.
- The potential negative impacts and environmental risks associated with the activity.
- How the impact will be prevented or managed.
- The relevant environmental standards to be met.
- Environmental monitoring to be undertaken and records maintained.

The Method statement shall also cover applicable details with regards to:

- Construction procedures.
- Materials and equipment to be used.
- 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 how potential environmental impacts will be managed.
- Compliance/ non-compliance with the Standard Environmental Specification
- Any other information deemed necessary by the Employer's Construction Manager

The Contractor shall abide by these approved Environmental Method Statements, and any activity covered by an Environmental Method Statement shall not commence until it has been approved by the Employer's Construction Manager and Employer's Environmental Manager or Environmental Officer. To enable timely approvals, the environmental method statements shall be submitted to the Employer's Construction Manager and Environmental Officer for review three weeks prior to the intended date of commencement of the activity, or as directed by the Employer's Construction Manager. Certain method statements are required with the tender, as outlined in **Annexure 1**

Annexure 2 gives an explanation of method statements and provides a typical pro forma method statement sheet to be completed by the Contractor for each activity requiring an Environmental Method Statement.

6.4 Environmental Incidents and Non-Conformances

An environmental incident can be divided into three levels, e.g. major, medium and minor. They are defined as follows:

6.4.1 Major Environmental Incident (Level 1)

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, water and habitat) with extensive or long term impairment of ecosystem function or surface and groundwater resources;
- An inconvenience/disturbance/disruption/annoyance (including odour, dust, noise, traffic problems, loss of water supply) of a long duration or with a significant 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 where extensive property damage is experienced by interested and affected parties;
- Irreparable damage to highly valued structures and sacred locations;
- Public or national/international media outcry; and/or
- Instances where water samples taken by or for the regulator to check legal compliance, were found to be outside the permitted limits and have resulted in prosecution

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

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

6.4.2 Medium Environmental incident (Level 2)

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 groundwater 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; and or
- Instances where water samples taken by or for the regulator to check legal compliance, have been outside the permitted limits and an official caution/prohibition or improvement notice was issued

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

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

6.4.3 Minor Environmental incident (Level 3)

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 -/groundwater 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 water samples taken by or for the regulator to check for legal compliance, have been outside the permitted limits and a letter had been issued by the regulator
- An incident where there is unnecessary wastage of a natural resource. Examples are leaking water pipes, escaping steam and wastage of electricity where it is obviously not the intention that the natural resource be wasted.

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

6.4.4 Non-Conformances

A non-conformance may be issued to the Contractor by the Employer's Construction Manager/Environmental Officer in the event of a major or medium environmental incident, if there are repeated minor incidents and if the documentation required to comply with the CEMP is not prepared satisfactorily.

6.5 Documentation and Records

Copies of the following documents shall be kept by the Employers's Environmental Officer.

- Project Environmental Authorisation (if applicable)
- Project EMP approved by DEA (if applicable)
- CEMP, SES & PES
- Approved Environmental Method Statements

- Environmental monitoring data collected by the Contractor's Environmental Officer
- Environmental Incident Reports
- Environmental Awareness Training and attendance registers

The Contractor's Environmental Officer shall maintain copies of the following documents on site:

- Project Environmental Authorisation
- Project EMP authorised by relevant competent authority e.g. DEA
- Transnet and TCP SHEQ Policies
- CEMP, SES and PES
- Project Environmental Permits
- Declaration of Understanding
- Contractor's Environmental Policy
- Contractor's Organogram
- Contractor's Environmental Management Plan
- Approved Environmental Method Statements and Register
- Environmental Awareness Training and attendance registers
- Daily, weekly and monthly inspection checklists
- Hazardous Substances Register
- Non Conformance Reports and Registers
- Schedule for Construction Plant and Equipment
- Proof of waste disposal including hazardous waste
- Environmental monitoring records
- Environmental Incident Reports and Incident Register
- Records of Formal External Communications
- Site Closure Inspection Form
- Contractor's Environmental Management Handover File

All documents are to be retained for a period of 10 years. In the event of environmental documentation being lost, the Contractor will be penalised according to the specifications laid down in the relevant project-specific NEC contract.

6.6 Application for Exemption from complying with parts of the CEMP and/or SES

It is intended that the CEMP and SES be applicable to projects or activities of any size or complexity. For small projects, or where the scope of work is limited, the Contractor may request, in writing to the Employer's Project Manager, for exemption from parts of the CEMP. The Employer's Project Manager shall consult the Employer's Environmental Manager in reaching a decision on whether exemption from some of the CEMP provisions may be granted.

6.7 Declaration of Understanding

I, _____

Representing _____

Declare that I have read and understood the contents of the Construction Environmental Management Plan and associated documents for:

Contract _____

I also declare that I understand my responsibilities in terms of enforcing and implementing the Environmental Specifications for the aforementioned Contract.

Signed: _____

Place: _____

Date: _____

Witness 1: _____

Witness 2: _____

Annexure 1 - Main Actions Required by the Contractor to comply

1. Prior to Commencement

The Employer's Project Manager must ensure that the requirements below are requested of 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.

1.1 The Declaration of Understanding

The Declaration of Understanding in the Contractor's Guideline Document shall be signed and provided by the Contractor as part of his Tender Document.

1.2 Environmental Statements

Where relevant, an Environmental Management Plan and Environmental Method Statements, to meet the requirements of the CEMP, SES and PES (activity based environmental method statements), shall be provided by the Contractor as part of their 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
- 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

Note: The sanitation / toilet facilities are managed by the Health & Safety Department and are not covered in this CEMP.

1.3 Appointment of Contractor's Environmental Officer

The Contractor must appoint an Environmental Officer or assign to a competent person roles and responsibilities for environmental management during construction. The Contractor shall forward details of the appointment to the Employer's Construction Manager and Environmental Manager for their review and approval. Should the

Contractor's Environmental Officer or the person originally assigned with responsibilities for environmental management change from that person identified during either the tender stage, or the construction period, the Contractor shall submit the details of such appointment or assignment for the Employer's Project Manager's approval. No work can proceed until the replacement Environmental Officer or the assignment of a new person has been approved.

1.4 Environmental Induction

The Contractor shall ensure that all management, foremen and the general workforce, as well as all suppliers and visitors to site have attended the Induction Programme prior to commencing any work on site. If new personnel commence work on the site during construction, the Contractor shall ensure that these personnel undergo the Induction Programme and are made aware of the environmental specifications on site. The Contractor must ensure that all of their personnel understand the requirements of the EA, EMP, CEMP, SES and PES as relevant tom their scope of work.

1.5 Removal of rare, endemic or endangered species

Where applicable, the Contractor must ensure that he appoints a suitably qualified specialist, to be approved by the Environmental Manager or Environmental Officer, to undertake the "Removal of rare, endemic or endangered species". This appointment must be completed at least three weeks before commencement of any other work on site.

2. During the Construction Period

2.1 Copy of the CEMP and familiarisation thereof

A copy of the CEMP, SES and relevant PES shall be available on site, and the Contractor shall 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 the Standard Environmental Specification and PES.

2.2 Environmental Method Statements (Activity Based)

Other Activity Based Method Statements which are required during construction must be submitted to the Employer's Construction Manager and Environmental Manager for approval three weeks prior to the proposed commencement of the activity. 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 Construction Manager and Environmental Manager or Environmental Officer. The Contractor is provided with an Environmental Method Statement pro-forma which provides details of the minimum requirements to be included in the Contractor's Environmental Method Statement. Contractor's Environmental Method Statements that do not comply with those minimum requirements will not be approved. Activity Based Environmental Method Statements are defined in the Project Environmental Specification.

2.3 Environmental Method Statement Awareness

Where applicable, the Contractor's EO shall provide job-specific training on an *ad hoc* basis when workers are engaged in activities which require Environmental Method Statements. The Contractor's EO shall maintain a record of training topics and attendees.

2.4 Re-vegetation and rehabilitation

The Contractor shall be responsible for rehabilitating and re-vegetating all areas to the satisfaction of the Employer's Construction Manager and Environmental Officer as detailed in the project specifications.

2.5 Other issues to ensure compliance

The list below is a list of some of the other issues that the Contractor must ensure he has planned for to meet the requirements of the environmental specifications. It is not a comprehensive list but serves as a guide:

- Cement and concrete batching
- Workshop and maintenance of plant
- Protection of natural fauna and flora
- Protection of historical and archaeological artefacts

2.6 Site clean-up for Closure

The Contractor shall clear and clean the Site and ensure that everything not forming part of the Permanent Works is removed from site and that all rehabilitation has taken place in accordance with the Project Environmental Specification. Retention moneys will not be paid until a Site Closure Inspection (conducted by the Employer's EO) has taken place and signed off by the Employer's Construction Manager and Environmental Manager together with the Contract Completion Certificate.

Annexure 2 - Information on Environmental Method Statements (Activity Based)

Activity Based Environmental Method Statements are to be completed by the Contractor undertaking the work. The Environmental Method Statements will enable the potential negative environmental impacts associated with the proposed activity to be assessed.

The activity can only commence once the Environmental Method Statement is approved by the Employer's Environmental Officer and Construction Manager. In some instances local authorities may also need to approve the method statements. This will be highlighted in the Project Environmental Specification, when appropriate.

The Contractor (and, where relevant, any Sub-contractors) must also sign the Method Statement, thereby indicating that the works will be carried out according to the methodology contained in the approved Environmental Method Statement.

The Employer's Environmental Officer and Construction Manager, and where relevant ECO, will use the Environmental Method Statement to audit compliance by the Contractor with the requirements of the approved Environmental Method Statement.

Changes to the way the works are to be carried out must be reflected by amendments to the original approved Method Statement; amendments require the signature of the Employer's Environmental Officer and Construction Manager, denoting that the changed methodology or works are necessary for the successful completion of the works, and are environmentally acceptable. The Contractor will also be required to sign the amended Environmental Method Statement thereby committing him/herself to the amended Environmental Method Statement.

This Environmental Method Statement MUST contain sufficient information and detail to enable the Employer's Construction Manager and 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.

The initial Environmental Method Statements that will be required are listed in the environmental specifications. Others may be requested by the Employer's Construction Manager during the Contract.

The time taken to provide a thorough, detailed environmental method statement is time well spent insufficient detail will result in delays to the works while the environmental method statement is rewritten to the employer's construction manager's and environmental officer's satisfaction.

The page overleaf provides a *pro forma* method statement sheet which needs to be completed for each activity requiring a method statement in terms of the CEMP.

ENVIRONMENTAL METHOD STATEMENT

CONTRACT:..... **DATE:**.....

PROPOSED ACTIVITY (give title of method statement and reference number from the CEMP):

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

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

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

Start Date:	End Date:

DESCRIPTION OF HOW POTENTIAL ENVIRONMENTAL IMPACTS WILL BE PREVENTED OR MANAGED (provide as much detail as possible, including annotated sketches and plans where possible):

* Note: please attach extra pages if more space is required

DECLARATIONS

1) EMPLOYER'S ENVIRONMENTAL OFFICER

The work described in this Environmental Method Statement, if carried out according to the methodology described, is satisfactory to prevent or control environmental harm:

_____ (Signed) _____ (Print name)

_____ (Date)

2) PERSON UNDERTAKING THE WORKS

I understand the contents of this Environmental Method Statement and the scope of the works required of me. I further understand that this Environmental Method Statement may be amended on application to other signatories and that Employer's Environmental Manager and Construction Manager will audit my compliance with the contents of this Environmental Method Statement

_____ (Signed) _____ (Print name)

_____ (Date)

3) APPROVING AUTHORITY (i.e. Employer's Construction Manager)

The works described in this Method Statement are approved.

_____ (Signed) _____ (Print name) _____ (Designation)

_____ (Date)

Annexure 3 - Environmental Inspections and Audits

3.1 Environmental Inspections and Audits

Environmental inspections and audits are conducted using five basic techniques:

- 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.

For each construction project, the auditor and auditee are as follows:

Place	Inspector/Auditor	Auditee	Inspection/audit frequency
Work places	Contractor's Environmental Officer	Contractor's team	Daily Inspection
Construction site	TCP Environmental Officer	Contractor's Environmental Officer	Monthly Audit
Construction site (entire area)	Environmental Manager or Independent Auditor	Environmental Officer	Quarterly Audit

3.2 Work Places Inspection

The Employer'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.

3.3 Construction Site Audit

The Employer's Environmental Officer will be required to conduct monthly inspections 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 Employer's 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 rivers 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 Employer's Environmental Officer prior to site establishment.

3.4 Construction Site and Documentation Compliance Audit

The Employer's Environmental Manager and/or an independent environmental auditor will conduct quarterly audits of the entire construction site and documentation system, which may include, but not be limited to the following:

- Site entrance
- Entire works area
- 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:

- Employer's 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 Employer's Environmental Manager two weeks in advance of the quarterly audit.

3.5 Environmental Performance Criteria

The standard/minimum requirement for all environmental audits is 80%, anything less than this will be unacceptable. In circumstances where compliance is less than 80%, non-conformance reports will be issued to the Contractor.

APPENDIX F3:

METHOD STATEMENT FOR THE BELMONT BORROW PIT

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HEUNINGNESKLOOF BORROW PIT METHOD STATEMENT

HEUNINGNESKLOOF BORROW PIT METHOD STATEMENT		DOCUMENT NO	
Contractor		**Contract No**	
Contact Person			
Contract Period			
THIS DOCUMENT MUST BE COMPLETED USING THE TRANSNET PROJECTS CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN, WHICH INCLUDES THE STANDARD ENVIRONMENTAL SPECIFICATIONS.			
For	Method Statement for the mining of Belmont borrow pit		
Scope	The purpose of mining this borrow pit is to obtain suitable material to be used for earthworks construction. The main activities associated with mining of the borrow pit will include the clearing of the borrow pit area (i.e. removal of trees and grass), removal of topsoil to stockpile, construction of access roads/ramps, excavation of the borrow pit material to stockpile, loading the borrow material into tipper trucks, processing the borrowed material for use in earthworks construction, management of the borrow pit, and closure and rehabilitation of the borrow pit. Permits for the use of borrow pits must be obtained before any work can start on the borrow pit. Daily excavation inspection sheets are to be completed and all works is to be inspected by foreman and site engineer. Records of competency, risk assessments, toolbox talks and DSTI's will be kept at site office for reference. The following specifications are to be adhered to: • SANS 1200 • Additions and variations to SANS 1200 • TCP Construction Environmental Management Plan (ENV-STD-001 Rev00) • General Conditions of Contract (GCC02) • Special Conditions of Contract (GCC10) – New Edition, June 2008. A Search and Rescue Contractor will conduct work along five/eight metre wide strips which will be bush cut (chipped in situ) in order to provide vehicular access to the target points/borrow pit. Where plant specimens are required to be removed the soil is loosened around the plant, once identified, and then carefully lifted out of the ground and placed into woven bags for ease of transportation to an approved designated site, where they are replanted by the Planting Team into a pre-prepared area. <u>Clearing and Grubbing</u> This task involves the clearing and removal of trees and grass to designated areas identified by the engineer. • The borrow pit area is to be surveyed before any work commences • The relevant data is then submitted to the Environmental Officer for approval of the borrow area • Environmental guidelines according to the EMP must be adhered to • All trees and grass is to be removed and grubbed material is dozed into stockpiles • Loaders and tippers remove the grubbed material to the designated stockpile area identified by the engineer <u>Stripping of Topsoil</u> This task involves the removal of topsoil material to stockpile, identified by the engineer, for future use. • The borrow pit area is to be surveyed before any work commences		

HEUNINGNESKLOOF BORROW PIT METHOD STATEMENT

	• The topsoil is to be dozed or graded to stockpile or to the edge of the borrow pit area as specified by the engineer • Topsoil is moved to designated stockpile are with the use of loaders and tippers • The size and quantity of equipment to be used is determined by the conditions on site • Stockpiling procedures are to be followed as per the EMP • Water carts to be used for dust suppression <u>Management of Borrow Pit</u> This task involves the management of the face of excavations, barricading and providing access to the borrow pit. • Side slopes of the borrow pit to be trimmed to correct slope angle except for the live borrow pit face • Floor of borrow pit to be checked regularly to ensure smooth and safe driving surfaces • Berms to be constructed on the edges of the borrow pit • Drainage measures to be put in place to prevent damming of water • Water carts to be used for dust suppression • Testing of materials is to be done in accordance with quality plan • Guidelines according to the EMP must be adhered to <u>Rehabilitation of Borrow Pit</u> This task involves the rehabilitation of the borrow pit by the laying and spreading of top soil onto the borrow pit excavation.
Where	The site (Heuningneskloof Borrow Pit) is located just North of the existing Heuningneskloof crossing station, along the rail route between Kimberley and De Aar. X-coordinate: 3229894.000 Y-Coordinate: 43902.000
When	September 2013 – August 2016
Drawing Plan	Refer to the drawing H339473-3212-10-042-0004-001
Spoil/Waste site	To be identified by engineer.
Restriction to the Works	• Excavations should avoid bush clumps as far as possible, particularly those containing protected tree species. • Where bush clumps cannot be avoided, a search and rescue exercise will be required.
Personnel, Plant and Equipment	Geotechnical Contractor who will use the following equipment: • Excavators • Dozers • Tipper Trucks (12 m^3) • 140H Graders • Water Trucks (14 kl) • Flags • Lowbed Truck (For transporting machines on and off site) Search and Rescue Contractor who will use the following equipment: • Hand tools (pick, fork, screwdriver etc).

Description of how potential environmental impacts will be prevented or managed:

Activity	Impact	Mitigation	Monitoring
Borrow pit excavation	• Hamper natural	• Backfill soil immediately	• No waste shall be disposed

HEUNINGNESKLOOF BORROW PIT METHOD STATEMENT

	revegetation of plants. • Accidental removal of sensitive species.	after the soil profile has been recorded. Do not compact soil once it has been backfilled. • The subsoil and topsoil need to be separated and backfilling done with subsoil first and then topsoil. • Bush clearing must take place in a manner in line with the method statement of the Search and Rescue Contractor.	of by burning or burying. • All general waste generated shall be disposed of at a licensed waste disposal site. Waste shall be collected and disposed of on a weekly basis. • Contaminated soil shall be disposed of at a licensed hazardous waste facility if remediation is not possible. • Close out audit following completion of contract.

Completed By	Print Name and Surname	Signature	Date
Approved (Transnet Capital Projects Environmental Officer)	Print Name and Surname	Signature	Date
Countersigned (Transnet Capital Projects Contracts Manager)	Print Name and Surname	Signature	Date

Permits Issued					
Site Mobilization Permit		Date Issued	**Permit to Commence with Works**		Date Issued

APPENDIX F4:

HERITAGE MANAGEMENT PLAN (HMP)

Transnet Capital Projects
Ngqura 16 Mtpa Manganese Project

Heritage Management Plan - Kimberley to De Aar

Prepared by:	Elize Becker	10/10/2012 Date
Reviewed by:	Anita Bron	10/10/2012 Date
Approved by:	Evert Jacobs	10/10/2012 Date

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10 October 2012

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1. Heritage Management Plan

The heritage management plan (HMP has been completed following the identification of sensitive heritage resources in close vicinity to the existing manganese ore export railway line. The South African Heritage Agency (SAHRA) developed the relevant guidelines for the development of HMPs required for the management of heritage resources or places.

1.1 Introduction

The development of a HMP is a legal requirement in terms of the National Heritage Act (No. 25 of 1999). The aim of such a plan is to assist with the decision making procedures that are undertaken by the heritage resources authority. The document provides guidance to heritage officials in terms of possible conservation methodologies that can be used at sensitive heritage sites identified during site surveys. The initial site survey that was done for the Ngqura 16 Mtpa Manganese Project indicated that historical blockhouses, grave sites, rock art images and battlefield sites of significance border the existing railway line.

The proposed rail upgrade crosses different cultural landscapes, a variety of living heritage resources, tangible and intangible heritage sites. The significance levels of these heritage resources differ and are required to be managed differently.

As such, the HMP is aimed at providing construction workers with guidance in terms of the type of development activities that are allowed at sites in close vicinity of significant heritage resources, what the acceptable behaviour is at construction sites in close vicinity of grave sites and buffer zones that must be adhered to when works are taking place.

1.2 South African Heritage Resources Agency Guidelines

In terms of the guidelines set out for the Site Management Plans presented by SAHRA, a Cultural Management Plan that is similar to a HMP, is a policy that focuses on management of heritage resources (South African Heritage Resources Agency, 2012). The policy also refers to an Integrated Management Plan that involves different policies of which the Cultural Management Plan is one of them (South African Heritage Resources Agency, 2012).

According to SAHRA, heritage site management is inclusive of the control of elements that make up a physical and social environment: physical condition, land use, human visitors and interpretation (South African Heritage Resources Agency, 2012). The completion of a HMP is to conserve and minimize damage to a site. It is aimed at conservation, enhancement, presentation and maintenance of a site (South African Heritage Resources Agency, 2012).

1.3 Objectives

A HMP aims at achieving a balanced heritage management environment focusing on tangible and intangible heritage resources. The following objectives must be met to meet international standards (Australia ICOMOS, 2000):

- Determine a practical solution for site management at sensitive heritage resources sites;
- Protect the cultural heritage values of a place;
- Determine a clearly defined heritage stakeholder management plan;

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- Determine an appropriate buffer zone at sensitive heritage sites;
- Describe the type of activity that is allowed at the proposed construction areas; and
- Conduct an assessment of costing that is associated with the implementation of a HMP.

2. Legal Framework

In terms of the National Heritage Act (No. 25 of 1999) it is required that a HMP be completed at areas where heritage resources of significance may be impacted upon. The SAHRA HMP guidelines stipulate what information is needed before the heritage management document would be signed off by the heritage authorities. Only after approval of the HMP may any type of construction commence.

3. Heritage Management Plan Aims

The aim of a HMP is to:

- Direct what needs to be done, how the site must be protected, who will be responsible, who will fund it and when this activity must be completed;
- Define the goals to be achieved and the type of activities;
- Guide the future development;
- Determine the monitoring methodology;
- Assist with stakeholder engagement and identification of interested parties
- Explain the permitting procedure;
- Describe any professional requirements and clarifies responsibilities;
- Identify the site value and provides guiding principles for activities on site;
- Minimise loss or avoid adverse impacts on heritage resources;
- Ensure that cultural heritage is incorporated in spatial planning and linked to social strategies;
- Improve the understanding of cultural heritage and the contribution it makes to the broader management processes; and
- Ensure that proper investigation, recording and stakeholder meetings take place.

4. Heritage Management Principles (South African Heritage Resources Agency, 2012)

In terms of basic heritage management principles the following statements explain the reasons for protecting heritage resources that may be under threat of any type of development:

- Heritage resources are a valuable, finite, non-renewable and irreplaceable resource;

- Each generation has a moral responsibility to act as a trustee of the natural and cultural heritage that succeeds their generations;
- South Africa consists of rich natural and man-made heritage resources that must be conserved;
- Various cultures have contributed to the heritage resources and have the right to be protected; and
- Every person, community and institution has an obligation to ensure that heritage resources are not destroyed or disturbed.

4.1 Conservation Principles (South African Heritage Resources Agency, 2012)

Conservation principles are consistent of the following:

- To return or recover cultural places of interest;
- To educate communities in respecting the value of natural and cultural landscapes;
- To conserve natural and cultural heritage resources via an investigation completed by an inter-disciplinary team;
- To determine and analyse the evidence gathered and include public as well as local community knowledge in the conservation process;
- To use proper conservation policies;
- To record natural and cultural heritage resources and ensure that the documented data is transferred to an appropriate archive;
- To ensure that appropriate supervision and monitoring are undertaken at all time of the development stages;
- To ensure that all aspects of cultural conservation are taken into consideration;
- A heritage resource is not conserved as one aspect by itself, but the areas surrounding the resource are also protected;
- As little as possible intervention must be undertaken when development commences close to or at a heritage resources site;
- Architectural features, elements or components which have deteriorated must be repaired and not replaced;
- The conservation of heritage resources must include the contribution of all relevant disciplines;
- If additions and alterations are done, it must allow for the original material to stay intact;
- Historical places are protected with the contents included. None of the removable objects may be taken out of context;

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- Buildings must be conserved within its original position and may not be relocated. This is only allowed if work is completed that will have an impact on the sole means of ensuring survival; and
- Culturally valuable buildings must be occupied and used at all times.

5. Site Significance

Site significance is derived from the following statements:

- Cultural Value

  The cultural value of an area is determined by establishing the significance associated with heritage resources positioned within a specific cultural landscape (South African Heritage Resources Agency, 2012). In this case the stone age material, South African War history, diamond digging time period and rock art sites hold a cultural value associated with the heritage resources of the Northern Cape and the local community.

- Social Value

  The social value of heritage resources provides a focus on the spiritual, political, national and any other cultural attachments to the area. The area is linked to a significant South African war landscape, Stone Age cultural environment, indigenous groups and rock art cultural environment. On a provincial and local level, communities have placed a social value and attachment to the heritage resources identified at the proposed impacted areas. A social value of heritage resources adds a contribution to the daily lives of communities who live in close vicinity of the significant heritage resources areas. Taking all these cultural attributes into account, the area is of a symbolic value on a provincial and local level.

- Historic Value

  Historic value can be described in the significance it contributes to the knowledge of our past. A historical place can be linked to a cultural time period, type of human activity or a particular individual. The site in question is part of an in depth historical South African War value and diamond digging history.

- Scientific Value

  A site may have a scientific or research value that could provide significant data. The Middle Stone Age material identified may yield such data in terms of the stone age cultural landscape of the Kimberley to De Aar area. Scientific value includes local and institutional knowledge.

- Aesthetics Value

  Aesthetic value can be defined as the beauty of design or the frame of mind a place demonstrates. An area has a certain aesthetic symbolism which represents historical events. This value cannot be measured and is experiences differently experienced by local community members and visitors to the site.

5.1 Site condition and conservation history

The railway alignment is part of the cultural landscape and is adding to the heritage value of the area.

The historical station buildings have been occupied by illegal settlers, but no structures were damaged, demolished or altered purposely. Grave sites, structures, rock art and stone age material that abut the railway reserve have not been impacted upon. It seems that some archaeological site patterns have been damaged when the railway line was originally developed.

6. Visitor Management

A visitor management plan will be developed once additional studies have been completed. This will be linked to accessibility of heritage sites at areas positioned close to the railway line.

7. Action Plan

The action plan for Kimberley to De Aar includes the following activities:

- Provide the client with recommendations and HMP requirements.
- It is recommended that the Environmental Control Officer, Contractor and associated staff attend a heritage resources workshop. This will ensure that the relevant data is transferred to the correct people. A basic explanation of the type of heritage resources that may be uncovered, the method of handling the situation and the reasons for managing the heritage resources must be explained. A workshop allows for questions and to provide clarity in terms of the HMP requirements.

8. Permits

A sampling and monitoring permit should be issued for rescue work before development commences. Furthermore, such a permit will ensure that should the professional archaeologist discover any stone age material or other heritage objects, the material can be rescued and exported to the closest archives (museums or repository such as the McGregor Museum in Kimberley, Northern Cape.). A detailed permitting strategy has been included as part of the overall environmental impact assessment study.

9. Monitoring and Evaluation

Monitoring is advised during and after construction. An archaeologist must assess the site as soon as earthmoving activities commence to determine if any in situ material has been exposed. Thereafter the Environmental Control Officer must report on a monthly basis, on any heritage management issues that occurred. It must be emphasised that should any heritage resources be uncovered during and after construction that a professional accredited archaeologist attend to the site to provide guidance and determine the best way forward.

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10. Heritage Stakeholder Engagement

In terms of stakeholder engagement the following affected parties must be communicated with:

- Client

  Continuous liaison with the client is required to enable knowledge transfer and also to indicate the risk issues. The following client representative who is positioned in the Kimberley area should be involved in the Kimberley to De Aar heritage resources stakeholder management process:

  Cobus Cloete

  Depot Engineering Manager

  Infrastructure Maintenance

  Network Planning

  Kimberley

  Tel: (053)838 3227 / 083 284 6199

  Email: Cobus.Cloete@transnet.net

- South African Heritage Resources Agency (SAHRA)

  SAHRA is the main authority responsible for the archaeological resources located between Kimberley and De Aar. They will be responsible for issuing of sampling permits during the monitoring phases of the development. SAHRA's Archaeology and Palaeontology Unit is also responsible for providing comments in terms of the management of archaeological and palaeontological sites. SAHRA's details are as follows:

  The Chief Executive Officer

  111 Harrington Street

  Cape Town

  8001

  Tel: (021) 462 4502

  Fax: (021) 462 4509

- Provincial Heritage Resources Authority (PHRA)

  The PHRA is responsible for provincial heritage resources of significance that are inclusive of historical structures, grave sites and living heritage resources. They are responsible for commenting on heritage resources of provincial value. The heritage practitioner must engage with the PHRA to ensure that the relevant comments have been made and that their heritage management requirements are adhered to during construction. The Northern Cape (Ngwao Boswa ya Kapa Bokone) PHRA contact details are as follows:

  Andrew Ratha Timothy

Heritage Officer

Tel: 079 036 9294

Email: ratha.timothy@gmail.com

- Local Museums

The local museums positioned between Kimberley and De Aar area must be communicated with during and after construction. They may assist with any information regarding the historical background of the area, sensitive sites and who to contact when heritage resources are accidently uncovered. The local museum that may assist with guidance in terms of heritage resources management is McGregor Museum in Kimberley and the head of archaeology may be contacted at:

Dr David Morris

Head of Archaeology

McGregor Museum

Cell: 082 222 4777

Tel: (053) 839 2706

Fax: (053) 842 1433

- Department of Sports, Arts and Culture

The Department of Sports, Arts and Culture in the Northern Cape may be contacted if any information is needed in terms of cultural assets and any issues related to social development. The department may be contacted at:

MJ Sinthumule

Assistant Manager: Heritage

Department of Sports, Arts and Culture

Cell: 083 652 2476

- Historical Interest Groups

Historical interest groups have an interest in protecting the heritage resources at the Kimberley to De Aar area and may be of assistance when heritage objects are uncovered. Although the interests groups may not remove any archaeological material from the impacted area, they will be able to provide the Environmental Control Officer and construction workers with necessary guidance. The following list of historical associations may assist with any questions in terms historical resources positioned in and around construction areas:

South African Military History Society

Tel: (011)784 6232

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Tel: (010) 237 0676 South African History Online is a society that contributes to the understanding of local historical resources. They should be available to assist with any questions related to local historical resources positioned in the vicinity of the construction areas. The Cape Town office may be contacted at the following details:

Tel: (021) 447 4365

Email: info@sahistory.org.za

Doornbult Anglo Boer War Historical and Archaeological Site

Mrs Rina Wiid

Tel: (053) 203 8105

- Local Community Members

Local community members have an interest in their historical resources and an in depth knowledge regarding the location of sensitive areas. It is advised that local community members are included in the heritage resources decision making process. It is recommended that a public meeting is held at a central point for example at McGregor Museum where community members could raise their concerns in terms of any heritage resources concerns.

- Kimberley Tourism

Kimberley Tourism plays a significant role in promoting the heritage resources within the borders of the Sol Plaatjie Local Municipality. They may be contacted if any information is needed regarding tourism venues that are regularly used by visitors. Kimberley Tourism can be reached at the following contact details:

Tel: (053) 832 7298

Email: tourism@solplaatjie.org.za

11. Heritage Resources Management Strategy

The recommendations for site management must indicate:

- The type of activity that will occur;
- The best way of protecting the heritage resources;
- Measures that are required to be taken should any heritage resources be damaged by accident or on purpose (Department of Indigenous Affairs, Government of Australia, 2009).

Effective and active measures should be taken for the protection, conservation and presentation of cultural as well as natural heritage resources (Stovel Herb, 1998)

11.1 Proposed Hazard Management

The table below provides an indication of the type of hazards that may occur and a methodology to minimise or remove the possible impact.

Table 11-1: Possible Hazards

Possible Hazards	Impact	Management Strategy	Responsible Institution
Waste	Disturbance of heritage resources and destruction of the cultural landscape.	Properly enforced waste management guidelines.	Transnet
Fire	Total destruction of heritage resources.	Implementation of a fire control plan. No fire is allowed at the areas of where stone tools were identified.	Transnet
Removal of artefacts	Permanent loss of information.	No artefacts must be removed without a permit from SAHRA.	ECO must audit during and after construction Transnet
Unnecessary earthmoving activities or digging	Permanent loss of in situ material.	Earthmoving activities must be limited to the development areas. No additional digging is permitted.	ECO must audit during and after construction Transnet
Spills	Permanent damage of heritage resources.	Immediate rescue work will be required The local museum or heritage authorities (McGregor Museum and SAHRA) must be notified.	Transnet must inform
Floods	Permanent loss of heritage resources or the displacement of heritage resources from their original context.	Undertake archaeological rescue work and determine if any heritage objects may be removed from the site. The local museum or heritage authorities (McGregor Museum and SAHRA) must be notified.	Transnet

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11.2 Proposed buffer zones at sensitive heritage resources areas

Table 11-2: Proposed Heritage Buffer Zones

Type of Heritage Resource	Proposed Buffer zone
Rock Art Sites	50 metres
Grave Sites	50 metres
Historical Structures	50 metres
Battlefield Sites	100 metres

11.3 Rock art sites and construction activities

No rock art sites are positioned within the railway reserve, but it has been indicated in previous reports (University of Pretoria, 2008), that rock art sites are positioned within 50 metres of the railway line. The rock art sites of significance are listed on the Heritage Resources Map provided as part of the upgraded Phase 1 Heritage Impact Assessment. As such, guidance is provided below in terms of the type of behaviour required at these sensitive areas.

- No construction activities are allowed within 50 metres from any rock art sites;
- No rock art sites are allowed to be visited without the appropriate permission from the relevant heritage authorities;
- Rock art images may not be touched;
- No water is allowed on the rock art;
- No markings, writings or other images may be made on the surface of the rock art or at areas close to the rock art site;
- No archaeological artefacts are allowed to be removed from the rock art site or neighbouring areas;
- The proliferation of dust, vandalism or blasting activities should be prevented from occurring within the demarcated buffer zone; and
- Rock art areas are places of spiritual value and must be respected at all times.

11.4 Grave sites

Grave sites may not be disturbed. The following requirements must be adhered to at areas where construction is to take place close to burial areas:

- The graves must be fenced off to prevent any person from entering the site;
- No person is allowed to enter the buffer zone area without an approval from the appointed archaeologist and the heritage agency;
- No construction activity is allowed within 50 metres from grave sites;

- No borrow pit and laydown developments are allowed within 50 metres from a burial site; and
- Heritage objects scattered on the surface in the vicinity of the burial area may not be removed.

11.5 Historical Structures

The following requirements must be adhered to at areas where construction is to take place close to historical structures:

- No construction activities are allowed within 50 metres of historical structures that are positioned in the close vicinity of the development area;
- No access is allowed at the historical structures and no person may enter the buildings without authorisation from the relevant heritage agency; and
- The areas that surround the historical structures must be kept clean and no building material may be dumped next to the historical structures.

11.6 South African War Battlefield Sites

The South African War battlefield sites are cultural landscapes that are valued by the local communities. An appropriately sensitive attitude towards these battlefield sites must be adopted during construction at development areas positioned close to Spytfontein, Magersfontein, Modderriver, Jacobsdal, Graspan and Belmont:

- No heritage objects discovered during construction may be removed without authorisation from SAHRA and the PHRA; and
- Entrance to these areas is only allowed with the relevant permissions from the heritage authorities.

11.7 Mitigation

During earthmoving activities and vegetation clearance heritage objects are uncovered. In such a scenario the following actions should happen:

- Contact a professional accredited archaeologist, the local museum and SAHRA to inform them about the discovery;
- Do not remove any of heritage objects before an accredited archaeologist has not visited the site to determine what the significance of the findings are; and
- Only proceed with construction activities after approval has been received from SAHRA.

12. Conclusion and the Way Forward

In conclusion, the HMP is a document that guides proposed activities and behaviour that are expected to take place at construction sites. The document should be used as part of a monitoring system to ensure that heritage sites that are positioned in the railway reserve areas or border the proposed development are conserved and protected.

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