TRANSNET

national ports authority

PORT OF RICHARDS BAY MAINTANANCE PLAN

TNPA PORT OF RICHARDS BAY

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Abbreviations

EMP	Environmental Management Plan
CEMP	Construction Environmental Management Plan
NEMA	National Environmental management Act 107 of 1998
EIA	Environmental Impact Assessment
CES	Construction Environmental Specifications
EMD	Environmental Management Department
CEMS	Construction Environmental Method Statement
EA	Environmental Authorisation
DAEA	Department of Agriculture and Environmental Affairs
DWAF	Department of Water Affairs and Forestry
ECO	Environmental Control Officer
TNPA EM	TNPA Environmental Manager
RCO	Risk Control Officer
CSO	Contractor SHE Officer
PM	Project Manager
NB	Note well
SHEQ	Safety, Health Environment and Quality
C	Contractor
MSDS	Material Safety Data Sheets
I&AP's	Interested or Affected Parties
HCS	Hazardous Chemical Substances
TNPA	Transnet National Ports Authority

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1. BACKGROUND AND INTRODUCTION

The Port of Richards Bay (The Port), situated in the City of UMhlathuze, KwaZulu Natal, has a total land and water surface of 2 174 hectares and 1 443 hectares respectively. To date only half of that land has been developed.

The port hosts six cargo handling terminals equipped to ensure that clients can compete in the global arena:

- The Dry Bulk Terminal, operated by Transnet Port Terminals, imports and exports a variety of ores, minerals and woodchips
- Multi-purpose Terminal, also operated by Transnet Port Terminals handles breakbulk cargoes, including ferro chrome, pig iron, steel, forest products, granite, aluminum, bagged cargo, containers, heavy lifts and abnormal loads
- Richards Bay Coal Terminal Company Limited, is the largest single export coal terminal in the world with the capacity to export 72 million tonnes per annum
- Island View Storage, operated by Richards Bay Bulk Storage, handles a wide range of bulk liquids stored in tanks
- Richards Bay Bunker Terminal, operated by Joint Bunker Services, imports bunker fuel from Durban and Cape Town

The Port's inherent strength is its deep water infrastructure, with a maximum permissible draught of 17,5 metres. This coupled with the high-tech state of the art terminal infrastructures allows for high speed, high volume cargo handling and a fast turnaround of vessels. As a consequence, import / export and demand for maintenance activities are exacting a heavy toll on the port infrastructure. Additionally, the harsh marine environment has a negative corrosive and chemical reactive effect upon various structures, infrastructure and facilities within the Port. Regular maintenance activities are therefore required to counter the afore-mentioned effects. Most equipment pivotal to sustain port business and services is old and require replacement.

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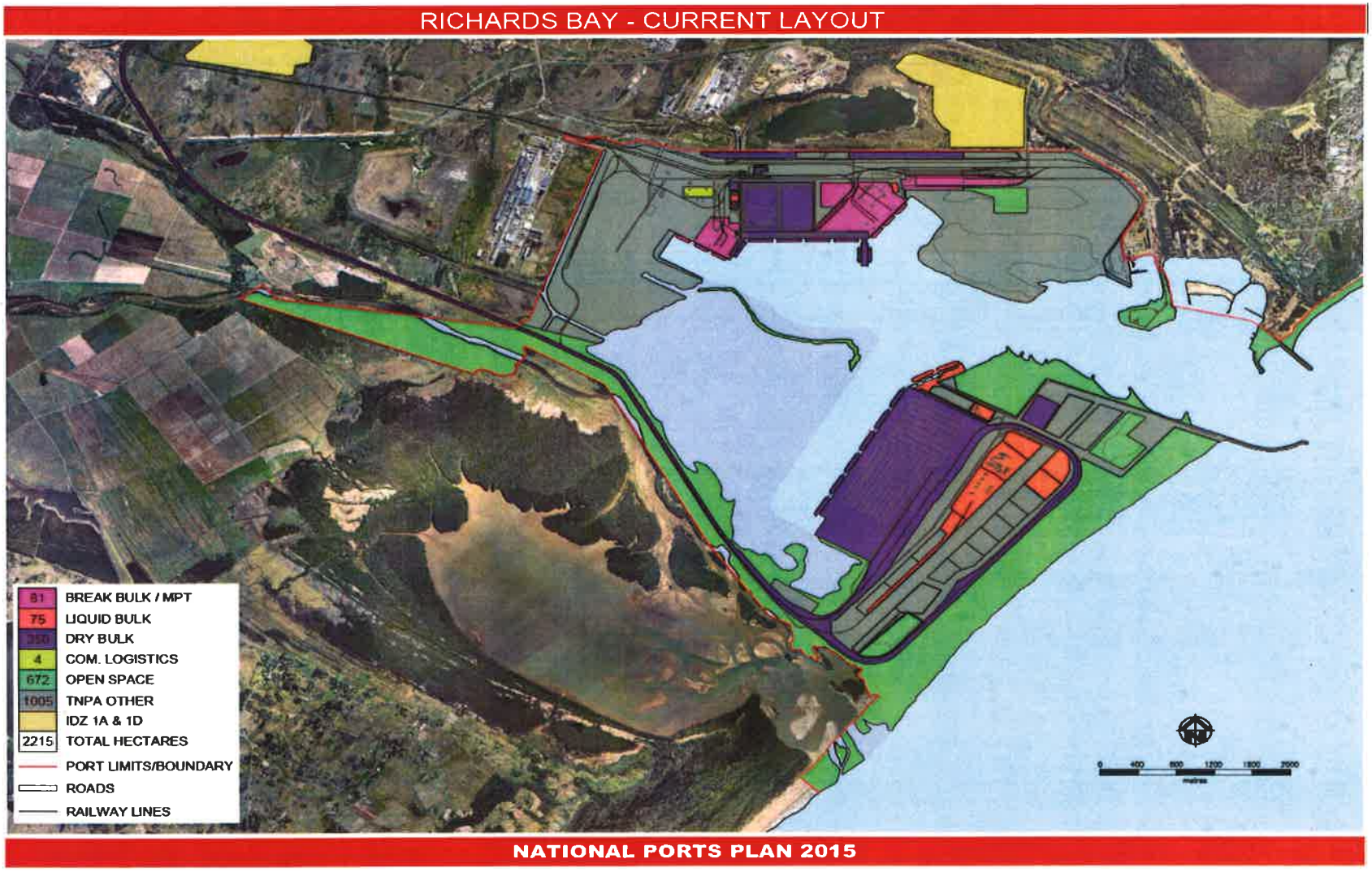

Figure 1: Locality Map of the Port of Richards Bay

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2. PURPOSE OF DOCUMENT

This Maintenance Plan describes environmental management requirements for activities associated with maintenance of the infrastructure in the Port of Richards Bay. Compliance with the environmental management requirements of this maintenance plan is compulsory for all Transnet personnel, Transnet representatives, Contractors and Sub-contractors that may be involved in the maintenance projects.

NEMA: EIA Regulations 2014 defines maintenance as means actions performed to keep a structure or system functioning or in service on the same location, capacity and footprint". Maintenance in the regulations refers to activities performed to keep a structure or system functioning or in service by reconstruction on the same location, same capacity and footprint, and replacing like for like. Maintenance does not include an increase in the footprint, capacity or throughput capacity.

Transnet National Ports Authority will ensure that all relevant environmental legislation is complied with during construction. This will include ensuring that principles as outlined in Section 2 of NEMA are implemented as and where applicable; and responsible waste management is practised at all times.

Typical maintenance activities will include:

- refurbishment of servitudes, roads, bridges and associated infrastructure including cleaning of drainage system;
- refurbishment of buildings (to adequately provide support services to port maintenance operations);
- repair to ageing services and / or alignment of such services to new and improved technologies;
- consolidation and or reconstruction of services / facilities / infrastructure / structures;
- implementing measures to align with current regulatory and / or best management practices; and
- improvement of ergonomic approach to optimize human well-being and overall system performance.
- repair of quay walls and break water infrastructure
- replacement of aging port equipment including rail lines (like for like replacement)
- Upgrade of port security fencing and firefighting system

3. ENVIRONMENTAL MANAGEMENT OBJECTIVE

The main objective of the Maintenance Plan is to ensure the implementation of environmental practices that are aimed at the best form of environmental protection. The aim is to ensure that TNPA takes reasonable measures to protect the environment and to remedy impacts to the environment as required by the Duty of Care principle as stated in Section 28 of the National Environmental Management Act, 107 of 1998, as amended (NEMA). The Maintenance Plan also takes specific recognition of the monitoring, auditing and implementing corrective actions needed when activities are undertaken under this Maintenance Plan.

Therefore, the other objectives[1] of the Maintenance Plan are to:

- Avoid, minimize and correct the disturbance of ecosystems and loss of biodiversity;
- Avoid, minimize and correct pollution and degradation of the environment;
- Avoid or minimize waste, to reuse or recycle waste where possible and to dispose of waste in a responsible manner;
- Anticipate and prevent negative impacts on the environment and on people's environmental rights. Where impacts cannot be prevented, such impacts must be minimized and mitigated.

4. PROJECT DESCRIPTION

Maintenance activities that may be required at the Port of Richards Bay from time-to-time are provided below:

4.1. Refurbishment of Servitudes, Roads, bridges and associated infrastructures including cleaning of drainage system:

- Excavations and infilling will be required for the refurbishment of existing servitudes, roads and bridges within the port. Some of the roads and associated infrastructure within the Port of Richards Bay have deteriorated with increased road use frequency and vehicle cargo weight and require urgent maintenance work to be undertaken. As such, existing road layers will be removed and replaced with new layer works and surfacing that incorporates a suitable top layer.

- Additionally, further excavations and infilling may also be required for the removal, replacement and/or placement of *inter alia* storm water infrastructure. Such infrastructure may include v-drains, culverts, manholes, outlet structures and others that are required to protect the roads, services and infrastructure from possible flood damage.
- Cleaning include removal of debris, cargo spill on the road and on-going maintenance of drainage channels within the Port.
- The proposed works are considered to be maintenance and falls within the definition of maintenance as provided by the Department of Environmental Affairs

4.2. Refurbishment of Quay pavement surfaces, quay walls, breakwater structures, berth top surfaces and other surfaces

Top and pavement surfaces have, at various localities, reached the end of their useful design life and have consequently deteriorated making the use of heavy port equipment unsafe. The objective is to remove the old pavement surface; together with its associated pavement layers in order to provide a safe working environment for the operational staff at the Port.

The proposed activity will entail:

- Excavation of the existing concrete / asphalt surfacing, underlying granular pavement layers and fill material to the bottom of the new, proposed pavement structure.
- Selection and stockpiling of material from the existing pavement that can be re-used.
- Removal of the existing services.
- Spoiling of materials that will not be re-used.
- Replacement of jointed reinforced concrete track slabs.
- Placing of the replacement services.
- Replacement of the pavement layer-works including a 400 mm thick plain jointed concrete pavement.
- Tie into the existing asphalt surfacing by using asphalt wearing course infill layer where there are level differences.
- Replacement of damage doloses structure.

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The final level of concrete pavement and track slab will tie in with the existing adjoining asphalt surfacing, concrete quay wall and crane rail beam. The levels were designed with a fall towards the quay wall edge for storm water management purposes.

The proposed works are considered to be maintenance and falls within the definition of maintenance as provided by the Department of Environmental Affairs.

4.3. Refurbishment of ageing equipment

Transnet National Port Authority manages, control and administers the South African Port system. Its responsibility is to provide safe efficient, effective functioning of the Ports infrastructure. The Port of Richards Bay is a port with essentially two functions; it serves as a dry bulk terminal that exports bulk dry commodities like chrome, magnetite and coal and it also serves as a multi-purpose terminal that accommodates break bulk commodities like granite and pig-iron as well as other non-priority bulk items.

The Port was originally designed to receive export cargo by rail, with an operating model and infrastructure deployed in the Bayvue Yard for 40 wagon vacuum-braked trains. Currently, the Terminals receive air-braked trains varying in length up to 75 wagons that require significant shunting during processing, resulting in excessive turn-around times in the port.

The refurbishment of existing system components and equipment may require the replacement of old components and equipment with new components and equipment of a similar nature to perform a similar function. The new components and equipment will be a "like for like" replacement of existing equipment. The placement of the components and equipment may require excavations for *inter alia* foundation placement, for example replacement of rails, sleepers, turnouts etc. This is required as replacement components and equipment may not have the same foundation footings as the existing components and equipment requiring replacement

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4.4. Repair or replacement of existing services including telecoms, electricity cables, water and sewer pipelines and product pipelines

The activity may include the excavation of trenches for the removal of existing services. Structures such as culverts and pipe sleeves may be placed wherein the services will be reinstalled. These structures provide effective protection against potential damage; and allow maintenance crews ease of access to remove portions of the services without the need for further excavations. The trenches (containing buried services) will then be backfilled with selected fill, where-after the top surfaces will be re-instated.

The replacement of sewer and product pipelines will only commence once the pipe contents have been removed from the pipe and the pipe is secured. Typically a temporary by-pass pipeline will be placed to redirect pipe contents, prior to pipe replacement, to prevent potential leaks. This has an added benefit of allowing the service capacity to be maintained during maintenance work.

Where required, the placement of maintenance services for the continued operation of existing infrastructure will be included.

The proposed works are considered to be maintenance and falls within the definition of maintenance as provided by the Department of Environmental Affairs. An example is the routine maintenance of various services.

4.5. Refurbishment of structures and infrastructure including reconstruction

Several structures and infrastructure have been identified to be ageing / no longer fit for purpose / defective and require intervention to ensure a continued service life. Additionally, improvements to the ergonomic approach (to optimize human well-being) and overall system performance may be required.

Refurbishment may entail the excavation of foundations or infilling of the excavation footprint, earthworks, concrete and formwork reinforcement, masonry, waterproofing, ceilings, partitions and flooring, floor covering, wall lining, glazing, ironmongery, plastering and paintwork, electrical - and plumbing work.

Where no further maintenance works can be implemented, demolition and removal from site may be an option. In the event of demolition, reconstruction of functionally similar structures and infrastructure will be undertaken.

The proposed works are considered to be maintenance and falls within the definition of maintenance as provided by the Department of Environmental Affairs.

4.6. Refurbishment of Various Buildings

Various buildings within the Port require refurbishment in order to *inter alia* ensure these meet prevailing Environmental Health and SANS 10400 X and XA (The application of the National Building Regulations Part X: Environmental sustainability Part XA: Energy usage in buildings) requirements. Additionally, the Port wishes to reconfigure and refurbish existing identified buildings to improve the security and aesthetics to comply with Transnet's corporate identity. The scope to be executed involves the re-design, refurbishment and re-construction of various facets of the identified buildings.

The proposed work will include:

- The internal configuration to be restructured to provide better flow and use of space.
- Provision of new finishes.
- Lighting and electrical to be improved.
- Toilets to be upgraded.
- Signage to be upgraded.
- Fire detection/suppression to be upgraded.
- Emergency lighting to be installed.
- Air conditioning to be upgraded.
- Improvement of ergonomic approach to optimize human well-being and overall system performance.

Refurbishment may entail the excavation of foundations or infilling of excavation footprints, earthworks, concrete and formwork reinforcement, masonry, waterproofing, ceilings, partitions, replacement of asbestos roofs and flooring, floor covering, wall lining, glazing, ironmongery, plastering and paintwork, electrical and plumbing work.

The proposed works are considered to be maintenance and falls within the definition of maintenance as provided by the Department of Environmental Affairs.

4.7. Upgrade of port security fencing and firefighting system

Some of the fence lines were installed to protect the infrastructure from the moving dune. In some case the dune movement occur over a short space of time and result to a total destruction of the fence. The dune and its associated vegetation encroach the Port infrastructure and bury it. This then raises a need for removal of dune soil to make sure that the infrastructure is not compromised.

With regards to firefighting system, in the olden days of Transnet which was then known as South African Railways and Harbours, the company was not required to get approval of building plans from the local municipality and therefore did not receive compliance certificates for its premises which are issued by local authority. Water supplies and firefighting equipment needs to be integrated and upgraded to ensure emergency preparedness and compliance to the latest standards/best practices.

5. Applicable Legislation

5.1. National Environmental Management Act

Maintenance work does not require an Environmental Authorization in terms of Section 24 of NEMA and the associated EIA Regulations, as amended. However, a maintenance plan must be developed and approved by the competent authority (DEA) before the project commences. Section 28(1) of NEMA (Duty of Care and remediation of environmental damage) requires that any person who cause, have caused or may in future cause pollution or degradation of the environment takes reasonable measures to remediate the impact. Non-compliance with this Section (Duty of Care) is a criminal offence and may lead to criminal prosecution.

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5.2. National Heritage Resources Act

The National Heritage Resources Act (Act No. 25 of 1999) (NHRA) directs the protection and management of heritage resources in South Africa. The proposed maintenance work is not expected to have an impact on heritage resources, however should any material of heritage importance be discovered, works will cease and Amafa AkwaZulu Natali will be contacted for advice and further assessments.

5.3. National Environmental Integrated Coastal Management Act

All maintenance work will comply with the relevant requirements of the National Environmental Management: Integrated Coastal Management Act (Act 24 of 2008) (NEM: ICMA). As such, no maintenance related activities will be permitted to cause pollution upon or degrade the marine environment.

6. NEMA Listing Notices

The following were investigated as potential triggers associated with the maintenance projects:

Activity No.	Triggered Activity	Applicability
LN1:GNR983 Activity 18	• The prevention of free movement of sand, erosion or accretion within the littoral active zone, excluding where restoration and maintenance is undertaken in accordance with a maintenance	• Some fence lines were installed to protect the infrastructure from the moving dune. This activity is considered to cater for those areas.
LN1:GNR983 Activity 19	• The infilling, depositing, removal or movement of soil of more than 5 cubic meters within 100m of a high water mark.	• Maintenance of port infrastructure such as breakwater structures; fence; roads, bridges and canals; quay walls and tunnels; water pipelines; sewer pipelines; buildings; port fire system etc. Most of these structures are either within a watercourse; the seashore; or the littoral active zone or 100
LN3:GNR985 Activity 12	• The clearance of 300m2 or more of indigenous vegetation except where such clearance is done for maintenance purposes in accordance with a maintenance plan.	• In some areas vegetation will need to be cleared to do maintenance. For example, maintenance of pipelines/ servitudes and fire breaks will require clearance of vegetation

All activities to be undertaken in terms of this maintenance plan have been aligned with the definition of maintenance and will not increase the capacity or footprint of the Port or the individual components requiring maintenance.

7. Roles and Responsibilities

Responsible persons	Activities
Environmental Specialist (TNPA ES)	✓ The TNPA ES is responsible for designing; implementing and monitoring the maintenance plan to ensure that effective Environmental Management is carried out by the contractor during the construction phase of the project in order to ensure that environmental risks (aspects) are identified and mitigation measures are put in place to minimise the environmental impacts that may arise from the identified risks. ✓ To consider the scale and nature of each project and determine the environmental requirements. ✓ ES has the authority to nominate a representative to act as the ECO for the project/contract.
Risk Control Officer (RCO)	✓ To approve the safety file before the commencement of the project. ✓ To conduct induction of all contractor employees before the commencement of the project and retain the induction records. **NB:** Copy of the induction register must be kept by the contractor on a safety file. ✓ Conducting monthly SHE audits and random inspections to evaluate compliance with the project Safety Plan and legislative requirements
Contractor SHE Officer (CSO)	✓ Safety file is submitted to Risk Department (RD) for approval before the commencement of the project. ✓ The CSO shall convey the content of this EMP and the safety plan to the staff and the sub-contractors. **NB:** Records of communication such as attendance register must be filed for record keeping and audit purposes

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	✓ Ensure that employees are trained on their duties and relevant training records are filed and available when required ✓ The duties shall be clearly defined on the appointment letter that must be submitted to TNPA Environmental management Department. ✓ Participate in the monthly SHE audits
Project Manager (PM)	✓ Compile Environmental specification with the Environmental Department. ✓ Ensure compliance with the maintenance plan. ✓ Conduct project progress inspection and ✓ Participation in SHE audits conducted monthly by TNPA SHE Departments. ✓ Schedule and chair monthly progress meeting of the project.

8. Management of construction Activities and workforce

Project Environmental specifications, Risk Assessments and Method Statements	A. A project environmental specification shall be developed before the appointment of a contractor to determine the environmental requirements of the project B. TNPA Environmental Department shall determine which aspects of the activity may need to be included in a Method Statement otherwise all construction activities conducted for TNPA must comply with the Environmental requirements detailed in the CEMP/ guidelines. C. Prior to commencement of the project, an Environmental risk assessment and Method Statement shall be established to identify hazards and risks that may have a negative impact on the construction site and surrounding environment.	EMD and PM EMD C, EMD and PM

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	D. The Method statement must be approved by the TNPA Environmental manager prior to the commencement of the project. E. A competent person (Project CSO) must be appointed in writing to do enforcement and ensure compliance with the CEMP and Method statements developed for the project. F. Contractor must ensure that all employees have been trained about the risk identified and to ensure that all risks and controls are clearly understandable. A training attendance register reflecting the dates of training and the names and signatures of all trainees must be kept on file.	EMD C C
Access Routes Sound environmental principles must be followed whilst establishing access to the site.	**Survey Points** A. Roads or trails that are cut to provide temporary access for survey work must be minimised. B. Marking of survey points must be done with the EMD's approval C. Vegetation clearing must be kept to a minimum during survey operations, no trees to be removed unless with approval of the EMD	PM, EMD and C PM and EMD PM and EMD and C
	Access Routes A. The Contractor must take into account any limitations identified and recommendations made during the environmental studies when deciding on an access route to the construction site. Where no EIA has been done, natural vegetation present on site must be avoided. B. The location of all underground services and servitudes must be identified and confirmed. C. Choice of access routes should take into account minimum disturbance to businesses neighbouring the site.	PM, EMD & C PM PM

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	Maintenance of access roads	
	A. Movement of vehicles and machinery around the site must be restricted to designated routes otherwise operation outside these routes is illegal.	PM & C
	B. Contractors should ensure that access roads are maintained in good condition by attending to potholes, corrugations and stormwater damage as soon as these develop.	C
	C. If necessary, staff must be employed to clean surfaced roads adjacent to construction sites where materials have been spilt.	PM & C
	D. Unnecessary compaction of soils by heavy vehicles must be avoided; construction vehicles must be restricted to demarcated access, haulage routes and turning areas.	C
	Haulage Roads	
	A. All roads for construction access must be planned and approved by the PM and EMD ahead of construction activities. They should not be created on an ad-hoc basis.	PM & EMD
	B. Roads must follow natural contours to reduce stormwater erosion.	PM & C
	C. Roads must have as little cut and fill as possible.	PM & C
	D. Road widths and the radii of curves are to be reduced to the minimum required.	PM & C
	E. No trees / shrubs / groundcover may be removed or vegetation stripped without the prior permission of the EMD.	PM & EMD
	F. Agreed turning areas for haulage vehicles are to be formalised and used by the Contractor. No turning manoeuvres other than at the designated places shall be permitted.	C

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	G. Contractors shall construct formal drainage on all temporary haulage roads in the form of side drains and mitre drains to prevent erosion and point source discharge of run-off. H. Haulage roads must allow for the natural flow of water where required. I. All stream / river crossings and temporary bridges shall be built to the PM's/EMD's approval.	C C, PM & EMD
Setting up Construction Camp and Maintenance Careful planning of the construction camp can ensure that time and costs associated with environmental management and rehabilitation are reduced.	**Layout** A. Choice of site for the Contractor's camp requires the PM's permission and must take into account location of local tenants and operations and / or ecologically sensitive areas, including flood zones and slip / unstable zones. A site plan must be submitted to the PM for approval. B. No – go areas identified at design or during the EIA process must be demarcated and fenced where possible. These may include environmentally sensitive areas and other existing servitudes. C. The construction camp may not be situated on a floodplain or environmentally sensitive areas D. If the Contractor chooses to locate the camp site on private land, he must get prior written permission from both the PM and the landowner. E. In cases where on-site accommodation will not be required, the construction camp can thus be comprised of: ✓ site office ✓ ablution facilities ✓ designated first aid area ✓ eating areas	C & PM EMD & PM C & PM C & PM C & PM

	✓ staff lockers and showers (where water and waterborne sewers are available) ✓ material storage areas ✓ batching plant (if required) ✓ refuelling areas (if required) ✓ maintenance areas (if required) ✓ crushers (if required) ✓ waste collection areas ✓ parking areas for earthmoving equipment	
	F. The size of the construction camp should be minimised (especially where natural vegetation or grassland has had to be cleared for its construction). G. Adequate parking must be provided for site staff and visitors and for earthmoving / construction equipment. H. The Contractor must attend to drainage of the camp site to avoid standing water and / or soil erosion.	C & PM C & PM C
	Ablutions Where waterborne sewerage is not available, temporary chemical toilets must be provided by a company that has been approved by the PM and EMD. Such toilets must be available for all site staff, both at the camp site, and on all working areas as agreed by the PM. **NB:** The waste service providers appointed to work in the Port of Richards Bay must be in possession of the TNPA waste license. List of waste service providers with waste licence are given in Section 9. A. Toilets should be no closer than 50m from any natural water bodies. B. Toilets should not be further than 100m from where staff is working.	PM & EMD PM & C C C

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	C. No more than 20 people should share one toilet. (at least one sanitary facility for every 30 workers, and changing facilities for each sex D. Chemical toilets are to be maintained in a clean state and should be moved to ensure that they adequately service the work areas. E. The construction of "long drop" toilets is forbidden. F. Under no circumstances may open areas or the surrounding bush be used as a toilet facility. G. All shower areas must be properly constructed and must drain into a properly constructed soak away when waterborne sewerage is not available.	C & toilet supplier C C C C
	Eating Areas A. Sheltered eating areas should be regularly serviced and cleaned to ensure the highest possible standards of hygiene and cleanliness. B. All litter throughout the site should be picked up and placed in the bins with lids provided.	C C
	Housekeeping A. The contractor shall ensure that his camp and working areas are kept clean and tidy at all times.	C
Education of Site Staff on General and Environmental Conduct These points need to be made clear to all staff on site before the project begins	**Environmental Education and Awareness** Ensure that all site personnel have a basic level of environmental awareness training. The Contractor must submit a training schedule to the EMD for approval. Topics covered should include: ✓ What is meant by "environment". ✓ Why the environment needs to be protected and conserved. ✓ How construction activities can impact on the environment.	C

	✓ What can be done to reduce such impacts ✓ Awareness of emergency and spills response provisions. ✓ Social responsibility during construction. e.g. being considerate to local residents. It is the Contractor's responsibility to provide the site foreman with no less that 1 hour's environmental training and to ensure that the foreman has sufficient understanding to pass this information onto the construction staff. a) Translators are to be used where necessary. b) The PM / Environmental Control Officer should be on hand to explain more difficult / technical issues and to answer questions. c) The use of pictures and real-life examples is encouraged as these tend to be more easily remembered. d) Use should be made of environmental awareness posters on site. e) The need for a "clean site" policy also needs to be explained to the construction workers. f) The Contractor must monitor the performance of construction workers to ensure that the points relayed during their induction have been properly understood and are being followed. If necessary, the EMD personnel and / or a translator should be called to the site to further explain aspects of environmental or social behaviour that are unclear.	C

	Worker Conduct on Site A general regard for the social and ecological well-being of the site and adjacent areas is expected of the site staff. Workers need to be made aware of the following general rules: a) No alcohol / drugs to be present on site. b) No firearms allowed on site or in vehicles transporting staff to / from site, (unless used by security personnel). c) Prevent excessive noise. d) Prevent unsocial behaviour. e) Bringing pets onto the site is forbidden. f) No harvesting of firewood or medicinal plants, no hunting, trapping or collection of birds or animals from the site or from the areas adjacent to it g) Construction staff are to make use of the facilities provided for them, as opposed to ad-hoc alternatives. (e.g.: fires for cooking; the use of surrounding bush as a toilet facility are forbidden). h) Trespassing on private / commercial properties adjoining the site is forbidden. i) Driving under the influence of alcohol is prohibited. j) Other than pre-approved security staff, no workers shall be permitted to live on site.	C
Establishing Storage Areas Storage areas can be hazardous, unsightly and can cause	**General Substances and Materials** A. Choice of location for storage areas must take into account prevailing winds, distance to water bodies and general on-site topography.	PM & C

environmental pollution if not designed and managed carefully.	B. Storage areas must be designated, demarcated and fenced if necessary. C. Storage areas should be secure so as to minimize the risk of crime. D. Fire prevention facilities must be present at all storage facilities. E. If electrical equipment for substations is stored on site a fire break will be required around the storage area.	C C C C
	Hazardous Chemical Substances (HCS) **Definition:** Hazardous substances / materials are those that are potentially: poisonous, flammable, carcinogenic or toxic. Examples include: ✓ diesel, petroleum, oil, bituminous products ✓ cement ✓ solvent based paints ✓ lubricants ✓ explosives ✓ drilling fluids ✓ pesticides, herbicides ✓ LPG A. In some cases, storage of hazardous substances may require EIA authorization. The contractor is to ensure that such authorization has been obtained before such substances are kept on site. B. Material Safety Data Sheets (MSDSs) for all chemicals and hazardous substances to be used on site shall be communicated with relevant workforce and readily available at the point of use. Where possible and available, MSDSs should additionally include information on ecological impacts and measures	C C

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	to minimise negative environmental impacts during accidental releases or escapes.	
	C. Hazardous storage and refuelling areas must be bunded with an impermeable liner to protect groundwater quality. The Contractor shall submit a method statement to the PM and EMD for approval.	C
	D. Fuel tanks must meet relevant specifications and be bunded and elevated so that leaks may be easily detected. Fuel bunds must be constructed to properly contain at least the 110% of the volume of fuel being stored.	C
	E. Storage areas containing hazardous substances / materials must be clearly demarcated and required signs displayed.	C
	F. Containing carrying HCS must be clearly labelled to show its content	C
	G. It is very important that the proximity of buildings and other structures is taken into account when deciding on storage areas for hazardous substances.	C
	H. Tenants, activities and operations adjacent to the construction site must be notified of the existence of the hazardous storage area.	C
	I. Staff dealing with these materials / substances must be aware of their potential impacts and follow the appropriate safety measures.	
	J. Contractors shall submit a method statement and plans for the storage of hazardous materials and emergency procedures.	
Handling of Hazardous substances / materials	**Handling of Hazardous Materials**	
	K. All concrete mixing must take place 100m away from a high water mark or 32m away from the wetland on a designated, impermeable surface.	C
	L. No vehicles transporting, placing or compacting asphalt or any other bituminous product may be washed on site.	C

	M. Lime and other powders must not be mixed during excessively windy conditions except if mixing is taking place in an enclosed environment where no duct would develop.	C
	N. All substances required for vehicle maintenance and repair must be stored in sealed containers until they can be disposed of / removed from the site.	C
	O. Hazardous substances / materials are to be transported in sealed containers or bags.	C
	P. Spraying of herbicides / pesticides should not take place under windy conditions and must comply with OHSA specs and other chemical handling laws.	C
	Q. The emergency numbers in Section E should be consulted should any accidents / spillages of hazardous substances and / or materials take place.	C
	R. The Contractor is to outline a method statement for the dealing of accidents / spillages of hazardous materials.	C
Materials Management – Sourcing Materials must be sourced in a legal and sustainable way to prevent off-site environmental degradation.	**Source of Materials** A. Contractors shall prepare a source statement indicating the sources of all materials (including topsoil, sands, natural gravels, crushed stone, asphalt, clay liners etc), and submit these to the PM and EMD for approval prior to commencement of any work.	C
	B. The supplier must provide proof that they have sourced materials from an approved site. A signed document from the supplier of natural materials must be obtained confirming that they have been obtained in a sustainable manner and in compliance with relevant legislation.	C

	C. Where materials are borrowed (mined), proof must be provided of authorisation to utilise these materials from the landowner / mineral rights owner and the Department of Minerals and Energy.	C
	Stockpile Management	
	A. Stockpiles should not be situated such that they obstruct natural water pathways.	C
	B. Stockpiles should not exceed 2m in height unless otherwise permitted by the PM or EMD.	C
	C. If stockpiles are exposed to windy conditions or heavy rain, they should be covered either by indigenous vegetation or cloth, depending on the duration of the project. Stockpiles may further be protected by the construction of berms or low brick walls around their bases.	C
	D. Stockpiles should be kept clear of weeds and alien vegetation growth by regular weeding.	C
Dust Control	A. Vehicles travelling along the access roads must adhere to speed limits to avoid creating excessive dust.	All
	B. A speed limit of 20km/hr must be adhered to on all dirt roads unless specified otherwise.	All
	C. Camp construction / haulage road construction – areas that have been stripped of vegetation must be dampened periodically to avoid excessive dust.	C
	D. Stockpiles may cause dust and so must be managed in accordance with the guidelines in Materials Management in section B.7.2 above	C

	E. Fine materials being transported must be covered with tarps or equivalent material.	C
Air Pollution Establishment of the camp site, and related temporary works can reduce air quality.	A. The Contractor must make alternative arrangements (other than fires) for cooking and / or heating requirements. LPG gas cookers may be used provided that all safety regulations are followed. B. Vehicles and machinery are to be kept in good working order and to meet manufacturer's specifications for safety, fuel consumption etc. C. Should excessive emissions be observed, the Contractor is to have the equipment seen to as soon as possible. D. No fires are allowed on site except for the burning of firebreaks.	C C C C
Water Quality Water quality is affected by the incorrect handling of substances and materials. Soil erosion and sediment is also detrimental to water quality. Mismanagement of polluted run-off from vehicle and plant washing and wind dispersal of dry materials into rivers and watercourses are detrimental to water quality.	A. Storage areas that contain hazardous substances must be bunded with an approved impermeable liner. B. Spills in bunded areas must be cleaned up, removed and disposed of safely from the bunded area as soon after detection as possible to minimise pollution risk and reduced bunding capacity. C. Materials caught in this bunded area must be disposed of to a suitable legal landfill site D. Mixing / decanting of all chemicals and hazardous substances must take place either on a tray or on an impermeable surface. Waste from these should then be disposed of to a suitable legal landfill site. E. Site staff shall not be permitted to use any stream, river, other open water body or natural water source adjacent to or within the designated site for the purposes of bathing, washing of clothing or for any construction or related activities. Municipal water (or another source approved by the PM or EMD) should instead be used for all activities such as washing of equipment or	C C C C C

	disposal of any type of waste, dust suppression, concrete mixing, compacting etc. F. Emergency contact numbers in Section E should be referred to in order to deal with spillages and contamination of adjacent environments.	 All
Waste Management and Disposal **Definition:** "Refuse" refers to all construction waste (such as rubble, asphalt millings, cement bags, waste cement, timber, cans, other containers, wire and nails), household and office waste **NB:** *All waste contractors appointed must be registered and with a license to operate within the Port*	**Set up of waste management procedures** A. A contractor shall develop a waste Method Statement that delineates in details how the contractor will deal with waste generated on site during the construction phase. B. Method Statement must be submitted to the TNPA EM for approval commencing with construction. C. The excavation and use of rubbish pits on site is forbidden. D. Burning of waste is forbidden. E. Individual skips for different types of waste (e.g. "household" type refuse, building rubble, etc) should be provided. See Section E for waste disposal resources within the Richards Bay and Empangeni area. **NB:** The waste service providers appointed to work in the Port of Richards Bay must be in possession of the TNPA waste license. List of waste service providers with waste licence are given in Section E **On-Site Waste Management** A. Refuse must be placed in the designated skips / bins which must be regularly emptied. These should remain within demarcated areas and should be designed to prevent refuse from being blown out by wind.	C PM & C C C C C

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	B. In addition to the waste facilities within the construction camp, provision must be made for waste receptacles to be placed at intervals along the work front where relevant.	C
	C. Littering on site is forbidden and the site shall be cleared of litter at the end of each working day.	C
	D. Recycling is to be encouraged by providing separate receptacles for different types of waste and making sure that staff are aware of their uses.	C
	Waste disposal	
	Non-hazardous Waste	
	All waste must be removed from the site and transported to a landfill site as listed in Section E.	C
	A. Safe disposal certificate for disposal of waste shall be provided during audits and inspections.	C
	B. Construction rubble shall be disposed of in pre-agreed, demarcated spoil dumps that have been approved by the PM and EMD, or at disposal sites as listed in Section E.	C
	C. Waste from chemical toilets should be disposed of regularly and in a responsible manner by a registered waste contractor. Care must be taken to avoid contamination of soils and water, pollution and nuisance to adjoining areas.	C
	Hazardous Waste	

	A. Hazardous waste disposal must be carried out by an approved waste Contractor as listed in Section E. Safe disposal certificate for this should be provided. B. A sump (earth or other) must be created for concrete waste. This is to be de-sludged regularly and the cement waste is to be removed to an approved landfill site. **NB:** The waste service providers appointed to work in the Port of Richards Bay must be in possession of the TNPA waste license. List of waste service providers with waste licence are given in Section E.	C C
Social Impacts It is important take notice of the needs and wishes of those living or working adjacent to the site. Failure to do say can cause disruption to work and increase costs in the form of delays.	**Public Participation** A. During the set up phase of the project, the PM or the Contractor needs to make contact with those people that are Interested or Affected by the development (I&AP's). B. I&AP's can be identified as those who either: ✓ Live close by to the site ✓ Work close by to the site ✓ Will have their services / infrastructure affected by the project ✓ Have a general interest in the project	PM & C
	Visual Impacts A. Storage facilities, elevated tanks and other temporary structures on site should be located such that they have as little visual impact as possible. B. Lighting on the construction site should be pointed downwards and away from oncoming traffic or adjacent activities	C C

	C. In areas where the visual environment is particularly important, the site may require screening in the form of shade cloth or other suitable materials prior to the beginning of construction.	C
	D. Special attention should be given to the screening of highly reflective materials on site.	C
	E. If screening is being used, this must be moved and re-erected as the work front progresses.	C
	F. The site must be kept clean to minimise the visual impact of the site.	C
	Disruption of Infrastructure and Services	
	A. Disruption of access for Tenants or operational sites must be minimised and must have the PM permission.	PM & C
	B. The PM or the Contractor must inform neighbours in writing of disruptive activities at least 24 hours beforehand.	
	Noise	
	A. Construction vehicles are to be fitted with standard silencers prior to the beginning of construction.	C
	B. Equipment that is fitted with noise reduction facilities (eg Side flaps, silencers etc) will be used as per operating instructions and maintained properly during site operations.	C
	C. Machinery and vehicles are to be kept in good working order for the duration of the project to minimize noise nuisance to neighbours.	C
	D. Notice of particularly noisy activities must be given to Tenants and operational sites adjacent to the construction site.	C
	E. Examples of these include: ✓ noise generated by jackhammers	

	✓ blasting ✓ drilling ✓ dewatering pumps F. Noisy activities must be restricted to the times given in the Project Specification or General Conditions of Contract.	PM & EMD
	Communication with Interested and Affected Parties (I&AP's) A. The PM and Contractor are responsible for on-going communication with those people that are interested in / affected by the project. B. A complaints register should be housed at the site office. This register must be tabled during monthly progress meetings and audits. C. I&AP's need to be made aware of the existence of the complaints book and the methods of communication available to them. D. Queries and complaints are to be handled by: ✓ documenting details of such communications ✓ submitting these for inclusion in complaints register ✓ bringing issues to PM attention immediately taking remedial action as per PM instruction E. Selected staff must be made available for formal consultation with I&AP's in order to: ✓ explain construction process ✓ answer questions	PM & C C PM & C PM & C C
Security and Safety	**Fencing** A. The site must be secured in order to reduce the opportunity for criminal activity in the locality of the construction site.	C

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	B. Potentially hazardous areas such as trenches are to be demarcated and clearly marked with appropriate signage.	C
	Lighting Lighting on site is must be set out to provide maximum security and to enable easier policing of the site, without creating a visual nuisance.	PM & C
	Risks Associated with Materials on Site A. Material stockpiles or stacks, such as, pipes must be stable and well secured to avoid collapse and possible injury to site workers and visitors. B. Flammable materials should be stored as far as possible from adjacent Tenants or operational sites. C. Firefighting equipment should be present on site at all times as per the legislative requirements. D. Obstruction to drivers' line of site due to stockpiles and stacked materials must be avoided, especially at intersections and sharp corners. E. No materials are to be stored in unstable or high-risk areas F. All IAP's should be notified in advance of any known potential risks associated with the construction site and the activities on it. Examples of these include: ✓ stringing of power lines ✓ blasting ✓ earthworks / earthmoving machinery on steep slopes above houses / infrastructure ✓ risk to residences along haulage roads / access routes	C C C C C PM & C
Soil Erosion	**Topsoil Stripping and Stockpiling**	

The stripping of vegetation during preliminary activities and earthworks on site greatly increases the risk of erosion. Uncontrolled soil erosion may cause siltation and pollution of water bodies and result in loss of valuable topsoil.	A. Once an area has been cleared of vegetation, the top layer (nominally 150mm) of soil should be removed and stockpiled in a designated area.	C
	Exposed Surfaces A. The full length of the works shall not be stripped of vegetation prior to commencing other activities. The time that stripped areas are exposed shall be minimised wherever possible. B. Replacement of topsoil and revegetation shall commence immediately after the completion of an activity and at an agreed distance behind any particular work front. C. Stormwater control and wind screening should be undertaken to prevent soil loss from the site.	C C C
Storm-water Serious financial and environmental impacts can be caused by unmanaged stormwater. Construction activities frequently result in diversions of natural water flow resulting in concentration of flow and an increase in the erosive potential of the water. Measures in this section are aimed at reducing the erosive potential of stormwater.	**General Principles:** A. To prevent stormwater damage, the increase in storm water run-off resulting from construction activities must be estimated and the drainage system designed accordingly. A drainage plan must be submitted to the PM for approval and must include the location and design criteria of any temporary stream crossings (siting and return period etc). B. During site establishment, stormwater culverts and drains are to be located and covered with metal grids to prevent blockages if deemed necessary by the PM. (e.g. due to demolition work). C. Temporary cut off drains and berms may be required to capture stormwater and promote infiltration. D. The Contractor shall not in any way modify nor damage the banks or bed of streams, rivers, wetlands, other open water bodies and drainage lines adjacent to or within the designated area, unless required as part of the	C C & PM C C

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	construction project specification. Where such disturbance is unavoidable, modification of water bodies should be kept to a minimum in terms of: ✓ Removal of riparian vegetation ✓ Opening up of the stream channel	
	E. Earth, stone and rubble must not be placed in stormwater channels, drainage lines or rivers.	C
	F. There should be a periodic checking of the site's drainage system to ensure that the water flow is unobstructed.	C, PM & EMD
	G. The use of high velocity stormwater pipelines should be avoided in favour of open, high friction, semi-permeable channels wherever feasible.	C
	H. A number of smaller stormwater outfall points should be constructed rather than a few large outfall points.	C
	I. Stormwater outfalls should be designed to reduce flow velocity and avoid stream bank and soil erosion.	C
	Stormwater Detention Ponds	
	A. Detention ponds should be vegetated either with wetland vegetation or grass from the Revegetation Specification. The detention ponds must not block the water flow, but should encourage spreading of the flow over a wider area to reduce velocity and encourage infiltration.	C
	B. Peak stormwater discharge from the site / area should not be increased with development of the site / area. Stormwater should be detained on site through the use of stormwater detention ponds wherever possible.	C

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	A series of detention ponds may be required where flow volumes are high.	
	Unchannelled Flow A. During construction unchannelled flow must be controlled to avoid soil erosion. Where large areas of soil are left exposed, rows of straw / hay or bundles of cut vegetation should be dug into the soil in contours to slow surface wash and capture eroded soil. The spacing between rows will be dependent on slope. B. Where surface runoff is concentrated (e.g. along exposed roadways / tracks), flow should be slowed by contouring with hay bales or bundled vegetation generated during site clearance operation. If the area must be used for construction vehicles, berms may be used instead. The berms must be at least 30cm high and well compacted. The berms should channel concentrated flow into detention ponds or areas protected with hay bales for flow reduction and sediment capture.	C C
Conservation of Natural Environment	**Fauna and Flora** A. No vegetation may be cleared without prior permission from the EMD. B. Trees that are not to be cleared should be marked beforehand with danger tape. The EMD must be given a chance to mark vegetation that is to be conserved before the Contractor begins clearing the site. C. Only trees that have NOT been marked beforehand are to be removed. D. Care must be taken to avoid the introduction of alien plant species to the site and surrounding areas. (Particular attention must be paid to imported material).	MP, C & EMD EMD C C

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	E. Disturbance to birds, animals and reptiles and their habitats should be minimised wherever possible. F. The hunting of birds and animals on site and in surrounding areas is forbidden. G. Snares and traps on site and in surrounding areas are forbidden. H. Immediate revegetation of stripped areas and removal of aliens by weeding must take place. This significantly reduces the amount of time and money that must be spent on alien plant management during rehabilitation. I. Alien vegetation encroachment onto the site as a result of construction activities must be controlled during construction.	C C C C C
	Sensitive Habitats A. Areas which are identified by the EMD as being ecologically sensitive and which are adjacent to any construction work are to be suitably demarcated to prevent damage by plant and labour. B. Temporary fencing should be used and should be moved in phases as the construction progresses from one area to the next.	EMD & C C
Cultural Environment	Prior to the commencement of construction, all staff need to know what possible archaeological or historical objects of value may look like and to notify the PM / Contractor should such an item be uncovered. A. Possible items of historical or archaeological value include old stone foundations, tools, clay ware, jewellery, remains, fossils etc. B. Should something of this nature be uncovered, work must be stopped and EMD must be contacted immediately. EMD shall then contact the closest office of AMAFA Research and Professional Services Division	C EMD EMD

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Climate Change The climate is changing due to the anthropogenic production of greenhouse gases and land-use change. Minimising the release of greenhouse gases and area of land disturbed should thus be strived throughout the construction and post construction activities.	Construction and post construction activities have the potential to contribute significantly to climate change through the use of carbon intensive equipment, transport of materials and labour as well as through the removal of vegetation and soil disturbance. It is therefore the responsibility of both the PM and Contractor to be aware of the effect of their activities on climate change and limit these impacts wherever possible. This should be done by: A. Utilizing materials that are produced as close to the site as possible, that require less carbon in their production, have been or can be recycled, have acceptable longevity and use less packaging. B. Minimizing the removal of vegetation and disturbance of the soil (both carbon stores) C. Utilizing carbon emissions efficient vehicles in a conservative manner. D. Educating employees about the impacts of climate change and the ways to mitigate their contribution to climate change.	PM & C

9. Post construction Activities

Construction Camp	A. All structures comprising the construction camp are to be removed from site. B. The area that previously housed the construction camp is to be checked for spills of substances such as oil, paint etc. and these should be cleaned up. C. All hardened surfaces within the construction camp area should be ripped, all imported materials removed, and the area shall be	C C, PM & EMD C

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	topsoiled and re-grassed using the guidelines set out in the revegetation specification that forms part of this document. D. The Contractor must arrange the cancellation of all temporary services.	 C
Vegetation	A. All areas that have been disturbed by construction activities (including the construction camp area) must be cleared of alien vegetation. B. Open areas are to be re-planted as per the **Revegetation specification (TNPA Environmental Management Department to make it available when necessary).** C. All vegetation that has been cleared during construction is to be removed from site or used as mulch as per the revegetation specification, (except for seeding alien vegetation). D. The Contractor is to water and maintain all planted vegetation until the end of the defects liability period and is to submit a method statement regarding this to the PM and TNPA EM.	C C C C
Land Rehabilitation	A. All surfaces hardened due to construction activities are to be ripped and imported materials thereon removed. B. All rubble is to be removed from the site to an approved disposal site as listed in Section E. Burying of rubble on site is prohibited. C. The site is to be cleared of all litter. D. Surfaces are to be checked for waste products from activities such as concreting or asphalting and cleared in a manner approved by the PM.	C C C & PM C

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	E. All embankments are to be trimmed, shaped and re-planted to the satisfaction of the PM and EMD. F. The Contractor is to check that all watercourses are free from building rubble, spoil materials and waste materials.	C C
Materials and Infrastructure	A. Fences, barriers and demarcations associated with the construction phase are to be removed from the site unless stipulated otherwise by the PM. B. All residual stockpiles must be removed to a landfill site or spread on site as directed by the PM. C. All leftover building materials must be returned to the depot or removed from the site. D. The Contractor must repair any damage that the construction works has caused to neighbouring properties.	C C & PM C C
General	A. A meeting is to be held on site between the PM, EMD and the Contractor to approve all remediation activities and to ensure that the site has been restored to a condition approved by the PM and EMD prior to "sign off" or completion being. B. Temporary roads must be closed and access across these blocked. C. Access or haulage roads that were built across watercourses must be rehabilitated by removing temporary bridges and any other materials placed in / or near to watercourses. Revegetation of banks or streambeds must be as necessary to stabilise these and must be approved by the PM and EMD. D. All areas where temporary services were installed are to be rehabilitated to the satisfaction of the PM and EMD.	PM, EMD & C C C C

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10. Monitoring Activities

Audits	SHE audits shall be conducted monthly by TNPA SHE departments. Audit dates shall be confirmed at least two weeks prior	TNPA SHE PM C
Inspections	Inspections shall be conducted daily by the CSO. These inspections shall include; housekeeping, tools, PPE, employee conduct, etc TNPA SHE shall also conduct random inspections to verify compliance with the relevant legal requirements	C TNPA SHE
Pre completion Audit	Prior to the completion of the project a pre-completion audit shall be conducted to address the concerns that need attention before the competition of the project	TNPA SHE PM C
Post completion Audit	After the completion of the project a post completion inspection shall take place to confirm if all is in order before the project handover to the PM	TNPA SHE PM C
Monthly progress meetings	Monthly progress meeting s to take place to discuss issues of concern encountered during the project and formulating measures to address the concerns. These meetings shall be chaired by the PM	PM

11. Waste Management Service Providers

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Licence number:	Service Provider:	Authorised Contact Person:	Telephone number:	E-mail address:
WD/RCB/03	Compass Waste Services (Pty) Ltd	Judy Du Randt	031 2679700 082 8020123	Judyd@compass.za.net
WD/RCB/16	Dolphin Coast Landfill Management (Pty) Ltd	Sacha Marot	087 3539750 076 9843750	sacha@dclm-kwadukuza.co.za
WD/RCB/11	Enviroserv Waste Management (Pty) Ltd	Dheena Govender	035 7511763 079 8908042	dheenag@enviroserv.co.za
WD/RCB/10	FFS Refiners (Pty) Ltd	Donald Cochran Alison Haycock	031 4595300 082 6533990	donC@ffs.co.za AlisonH@ffs.co.za
WD/RCB/04	Marineslops (Pty) Ltd			opsdurban@marineslops.com
WD/RCB/17	Re-Ethical Environmental Re-Engineering (KZN) (Pty) Ltd	Alex Bervoets Angelique Muller	031 9023542 083 4486420 031 9023542	alexb@re-sa.co.za angeliquem@re-sa.co.za
WD/RCB/05	Sanitech Toilet Hire [a division of Waco Africa (Pty) Ltd]	Deborah Dashper	035 7511963 083 7971892	deborahd@sanitech.co.za

12. Emergency

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TNPA Emergency	035 905 4111/ 083 708 0830
TNPA Clinic	035 905 3678
Local Authority Fire Department	035 797 3314
TPT Emergency	035 901 3333
Police	10111
Ambulance	10777

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